



# Defence Safety Authority

DNSR 04/18/10/05

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20<sup>th</sup> December 2018

## EXERCISE SENATOR 2018 ASSESSMENT

1. Exercise SENATOR 2018 was a Level 3 demonstration of the MOD Nuclear Emergency Organisation (NEO) response to a Nuclear Weapon (NW) Road Convoy incident. The exercise was held at MOD Longtown from 10<sup>th</sup> – 14<sup>th</sup> October 2018 and was jointly assessed by the Defence Nuclear Safety Regulator (DNSR) and the Defence Nuclear Security Regulator (DefNucSyR).
2. This demonstration was conducted in accordance with the MOD policy<sup>1</sup> on nuclear emergency response and against the Regulatory requirements<sup>2</sup>.
3. A joint set of DNSR and DefNucSyR objectives<sup>3</sup> was developed, reviewed and circulated for discussions and agreement through the exercise planning process. These were incorporated into the overall objectives for the SENATOR Exercise.<sup>4</sup>
4. During the Hot Wash Up a preliminary verbal assessment was provided and confirmed that this had been a challenging scenario, all objectives had been met and that a capability had been demonstrated. However, due to the complexity of the exercise and the volume of evidence gathered the adequacy of the demonstration could not be provided.
5. Consequently, in accordance with DNSR Local Work Instruction 22 "*overall SENATOR was an adequate test of the emergency arrangements and that the scenario presented sufficient challenge to test the plans and the exercise provided an adequate demonstration of their implementation.*"
6. The Reports at Appendix A – DNSR Detailed Assessment and B – DefNucSyR Detailed Assessment provide the detailed assessment of the demonstration and identify a number of enforcement actions which have been compiled into a single list at Annex C.
7. In total the following number of Enforcement actions have been identified:

<sup>1</sup> JSP471 – Defence Nuclear Accident Response

<sup>2</sup> JSP538 – Regulation of the Nuclear Weapons Programme and JSP628 – Security Regulation of Defence Nuclear Enterprise

<sup>3</sup> DNSR/04/18/10/05 Exercise SENATOR 2018 0 Assessment Plan

<sup>4</sup> DNO Exercise SENATOR 2018 Master Scenario Events List (MSEL) Issue 1.0

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Action	Number
Transport Improvement Notice	1
Transport Corrective Action Requirement	8
Transport Recommendation	16
Transport Observation	15
Security Corrective Action Requirement	2
Security Recommendation	5
Total actions	47

8. The Improvement Notice (IN) has been raised due to [REDACTED] [REDACTED] specified within current arrangements<sup>5</sup>. DNSR expects a Forward Action Plan (FAP) to be agreed as soon as reasonably practicable detailing how the IN will be closed out no later than 8<sup>th</sup> March 2019.
9. A review of the 23 outstanding actions at Appendix C has resulted in 1 Recommendation being upgraded to a CAR (TRR 0257), 10 actions being Closed, 3 being Overtaken by Events and 9 remain Open
10. DNSR and DefNucSyR expect to see a FAP providing evidence that the Enforcement Actions will be closed out as soon as is practical and that the Corrective Action Requirements identified within this report are closed out ahead of future Exercises.

Yours sincerely,

[REDACTED]

DNSR-IT1

Appendices:

- A. Exercise SENATOR 2018 – DNSR Detailed Assessment
- B. Exercise SENATOR 2018 – DefNucSyR Detailed Assessment
- C. Exercise ASTRAL BEND 2018 – List of Enforcement Actions

Distribution:

Action:

[REDACTED] DNO Dep Hd – Transport  
[REDACTED] - DNO Asst Hd - NEO

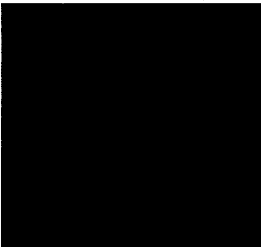
Information:

[REDACTED] – Director Nuclear Warhead  
[REDACTED] – Head DNSR  
[REDACTED] DNSR Nuclear Weapon Regulator  
[REDACTED] – DefNucSyR Deputy Head  
[REDACTED] DNO NEO Exercise Planner  
[REDACTED] – Ass Hd Nuclear Emergency Planning

<sup>5</sup> SWS000837 – Nuclear Emergency Organisation, NEO Civilian Members Handbook

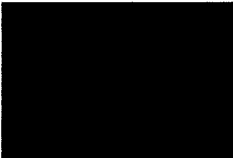
## Appendix A - SENATOR 2018 – DNSR DETAILED ASSESSMENT

### Defence Nuclear Safety Regulator (DNSR) Assessment Team



DNSR Head  
DNSR Principal Inspector Transport  
DNSR Principal Inspector Transport  
DNSR Inspector Transport  
DNSR Graduate  
DNSR Graduate  
Defence Science & Technology Laboratory  
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### Defence Nuclear Security Regulator (DefNucSyR) Assessment Team



DefNucSyR Deputy Head  
DefNucSyR Principal Inspector  
DefNucSyR Inspector  
DefNucSyR Inspector  
DefNucSyR Inspector

### Introduction

1. Exercise SENATOR 2018 was a Level 3<sup>6</sup> demonstration of the MOD Nuclear Emergency Organisation (NEO) response to a Road Convoy Incident. Exercise SENATOR 2018 was held between 10 Oct 18 and 14 Oct 18 at MOD Longtown, Cumbria. Day 1 of the exercise focused on the Immediate Response Force (Phase 1) as well as the National and Local Strategic Response (Phase 2). This was supported by Civil Emergency Services (CES) from Cumbria Fire & Rescue, Cumbria Constabulary and the North-West Ambulance Service, and local authority representatives. Days 2-5 focussed on the Recovery Phase (Phase 3) and the MOD NEO Follow-on-Forces recovery operation
2. This was the first exercise being assessed by both DNSR and DefNucSyR against a set of jointly agreed objectives. Key objectives for SENATOR 18<sup>7</sup> were:
  - a. Objective 1 - To demonstrate that SENATOR 2018 is an appropriate exercise to demonstrate the MOD NEO arrangements
  - b. Objective 2 - Notify and alert response organisations
  - c. Objective 3 - Support the On-Scene response – Command and Control (C2)
  - d. Objective 4 - Support the On-Scene response – Emergency Response Activities
  - e. Objective 5 - Support the On-Scene response – Security Activities
  - f. Objective 6 - Support the On-Scene response – Monitoring Activities
  - g. Objective 7 - Integration of MOD NEO Follow on Force (FoF)– C2
  - h. Objective 8 - Operation of MOD NEO FoF – Strategic
  - i. Objective 9 - Operation of MOD NEO FoF – Tactical
  - j. Objective 10 - Operation of MOD NEO FoF – Operational
  - k. Objective 11 - Operation of MOD FoF – Support Base
3. This appendix covers the DNSR assessment of the above objectives with the exception of Objective 5 which is covered by the DefNucSyR assessment at Appendix B. In addition, Appendix B will also provide the assessment of the Security arrangements throughout the Exercise.

### Objective 1 - To demonstrate that SENATOR 2018 is an appropriate exercise to demonstrate the MOD NEO arrangements

4. As part of the planning for SENATOR 2018, DNSR approved the date of 9<sup>th</sup> October 2018 following the completion of Astral Climb 2017 on 27<sup>th</sup> June 2017, giving 15 months to prepare for a Level 3 exercise. The scoping meeting was conducted on 27<sup>th</sup> November 2017 in Penrith and the subsequent planning

<sup>6</sup> JSP471 – Defence Nuclear Emergency Response, Part 1: Directive, V2.1 Dec18

<sup>7</sup> As defined in DNO Master Scenario Events List (MSEL) V1.0 dated 24<sup>th</sup> September 2018

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meetings on 7th February 9th May and 12th September 2018 at either MOD Longtown or [REDACTED] Further planning meetings were held at MOD Main Building on 28th February 30th May & 5th September 2018. As this was a complex exercise and would involve players at a number of sites the additional time and large number of additional strategic meetings were appropriate. Although a number of planning meeting were held to discuss play in London there were no specific objectives identified to ensure that the communications between GOLD/Strategic and London were effective.

**Transport Regulator Recommendation (TRR) 0281: For future Level 3 demonstrations ensure that an objective is included to test the communications between GOLD/Strategic and London**

5. DNSR supplied a copy of the 2011 SENATOR assessment and draft Objectives on 14th November 2017, to support in the development of the exercise, the formal objectives were issued by Defence Nuclear Organisation (DNO) on 4th June 2018. However, the detailed Distaff and Assessor Instructions, Master Scenario Events List (MSEL) and Player Instructions were signed on 24th September and issued to DNSR on 1st October 2018. The Health & Safety Plan, Risk Assessment and Security Plan had September 2018 dates, but were supplied to DNSR on 3rd October 2018. Draft documentation was not issued to assessors or players, which given the complexity of the level 3 exercise resulted in a number of last minute adjustments to the distribution of the DNSR/DefNucSyR assessment team.

**TRR 0282: Identified planning documentation should be delivered to Di-Staff and assessors in a timely manner, only in exceptional circumstances should the documents be issued after the Final Planning meeting.**

6. As part of the pre-exercise assessment a review of the DNO NEO documentation and training was conducted on 27th & 28th September. It was noted that several of the Standard Operation Procedures (SOP) for the NEO roles had been reviewed and up issued in August 2018, evidence gathered during the exercise confirmed the latest issue of SOPs was available to all players. [REDACTED]

**Transport Regulator Improvement Notice (TRIN) 0001:** [REDACTED]

[REDACTED] **DNSR expects a Forward Action Plan to be agreed as soon as reasonably practicable detailing how the IN will be closed out no later than 8th March 2019.**

7. With the Strategic play at GOLD taking place at a timeline in advance of the operational site a number of unnecessary complications were introduced for exercise players. This included GOLD players phoning Convoy Commander (CC) directly to ask for information about events that had not yet happened. The use of multiple timelines in the same exercise should be avoided if at all possible. If they are adopted the DiStaff usually need to provide a 'buffer' (SIMCELL or equivalent) between the two sections of the exercise working on different timescales.

**Transport Regulator Observation (TRO) 0205: If dual timelines are to be utilised greater care should be taken in the planning phase to ensure the appropriate information is available using an enhanced SIMCELL.**

8. At the end of each day a Di-Staff brief was undertaken to determine where play had progressed. This also led to discussions on what work would have been undertaken overnight and therefore where play would start the following morning, this had to be agreed with DNSR to ensure that all key activities were still demonstrated. On a few occasions start of play was not in accordance with what had been agreed the

<sup>8</sup> SWS000837 – Nuclear Emergency Organisation, NEO Civilian Members Handbook

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previous evening. This was due to a dynamic assessment of the situation which could have been pre-planned and agreed with DNSR up front to avoid confusion.

**TRR 0283: If 24-hour play is not undertaken ensure artificial overnight play is as far as possible pre planned and agreed during the planning phase.**

**Objective 2 - Alerting and Notification of the Civilian Emergency Services (CES)**

9. The Joint Operating Centre (JOC) Controller was slow in providing the required initial reporting detail on Nuclear Emergency Response Information Management System (NERIMS) and reported the incident as a rail and not a road Nuclear Transport Emergency (NTE). This was highlighted by other players on NERIMS and via phone calls, which caused confusion and potentially undermined confidence in NERIMS information.

10. The Senior Operations Officer (SOO) initial brief to MCA was excessive (approx. 7 minutes). However, as per the SOOs request it was agreed that BANKNOTE could be called and the pager system initiated. JOC SOPS A.A1.0.5 – A.A1.0.7 and A.A1.9.1.3 all direct the SOO and JOC Controller to conduct their actions, the delay meant that while the JOC Controller was awaiting the SOO to direct action other JOC personnel were following their procedures and informing stakeholder of the incident.

11. Three attempts were made to get the pager messages out, which took almost an hour after the initial incident. The delay meant that some message groups and organisations found out through Crown Media rather than the pager system. Furthermore, the DNSR pager was not activated during the exercise itself.

**Transport Regulator Corrective Action Requirement (TRC) 0284: The DNSR pager was not activated during the exercise. A review of how the JOC informs DNSR should be undertaken and demonstrated.**

12. Exercise artificiality meant that GOLD was in play sooner than normal which caused confusion between SOO, MCA and the CC as to what decisions had been made regarding convoy dispositions and locations of [REDACTED] Early interaction from BRONZE Cdr also was not useful in gaining the clarity required.

13. There were good communications between convoy executives and [REDACTED] Command & Control (C2) and other JOC personnel. Of particular note was CC asking for airwaves confirmation from JOC that they had received and understood the convoy accident message.

14. CC undertook tasks in accordance with SWS000690 Immediate Response Force (IRF) Manual Issue 10 dated 10 August 2018. Initial alerting of convoy personnel was undertaken efficiently with all personnel being instructed to don Respiratory Personal Protective Equipment (RPPE). However, no initial discussions or information was made available to discount that this could have been a [REDACTED] This was subsequently confirmed [REDACTED] CC and Nuclear Transport Operations Officer (NTOO) stated that issue 10 of the IRF Manual had not been formally provided to them and that they had to source their own copies. Establishment of [REDACTED] was raised at ASTRAL CLIMB 2017 and should have been demonstrated at SENATOR 2018. This was not undertaken and therefore this previous Recommendation has been raised to a CAR.

**TRR 0285: Ensure copies of all relevant documentation are formally issued to all stakeholders in a timely manner.**

**TRC 0257: Establishment that there is no malicious intent to the incident needs to be clearly identified and the process by which it is established demonstrated, so when the IC conveys this message to the IRF and JOC it effectively approves the use of multiple assets in life saving efforts.**

15. The first brief was undertaken with the JOC 11 minutes after NTE had been declared via Airwaves. This provided key information to the JOC for transmittal to appropriate CES. Regular updates were undertaken to ensure that the JOC had up to date information for further transmittal. Issues were experienced with GOLD Staff phoning the CC and NTOO directly asking for information that should have been provided via the JOC. Furthermore, the utilisation of dual timelines (GOLD 2-3hrs in advance of BRONZE) and early sight of information at GOLD meant that information being requested was not available from the CC. As a result, instead of collating the information required, time was spent dealing with requests that should have gone through the JOC.

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16. Integration with the CES was effective with copies of the Instructions In Writing (IIW) being provided by [REDACTED]

17. Distribution of sheltering advice in accordance with DNO documentation to the public was undertaken in a timely manner and in accordance with SOPs and was re-iterated on a regular drumbeat.

**Objective 3 - Support the On-scene Response – Command & Control**

18. Initial C2 arrangements were effectively established with the CC taken on the role of Incident Commander (IC). Actions were taken in accordance with the IRF Manual to ensure that a security cordon was established round the stricken asset, the unaffected assets were withdrawn to a safe distance, a Rendezvous Point (RVP) and a [REDACTED] were set up in a timely manner.

19. The Convoy Safety Officer (CSO) was deployed in a timely manner and was effective in controlling the immediate work taking place at the accident location and reporting relevant information to the CC.

20. A good brief was delivered by the convoy fire team who had to enter and cut injured persons from a car involved in the incident. The brief described the best approach route, emphasised no radios to be present (this action closes TRR 0253) and explained that they would be monitored for radioactive contamination when exiting the cordon.

21. In the initial stages of the incident the CSO radioed relevant information to the CC. This was followed up at 13:05 by a cross-cordon brief to the CC. This was comprehensive and included details of the initial incident, visual declaration of an NTE, confirmation of a release, when the fire was extinguished (stated as 11:15), condition of the [REDACTED] and crew, the number of deceased and casualties and noted that 4 had already been transferred to hospital.

22. A detailed map of the area was shown, with clear explanation of the debris field. Video taken had not revealed any classified items. The map and memory card from the camera were separately double bagged and passed across the cordon. Appropriate glove changes were observed that helped to minimise risk of transferring contamination across the cordon line.

23. Regular communications were maintained between the CC, EC and the JOC to ensure pertinent information was being provided to all key stakeholders. Good communication was undertaken between the CC, NTOO and [REDACTED] which allowed release of [REDACTED] personnel to support incident site activities.

24. The CC established himself within the Convoy Support Vehicle (CSV) at 10:55. At this point all key information was placed on the State Boards for ease of access. State Boards were kept up to date with all the information being provided by either the EC or the CSO. There was confusion in terms of the number of casualties in cordon and the extent of injuries. This was eventually clarified during a face to face brief with the EC and CC in developing the CES METHANE<sup>9</sup> Brief.

25. A clear and concise METHANE brief was given by the CC to the Cumbria Constabulary which resulted in a handover of out of cordon activities taking place at 12:16 (2 hours after NTE declared). During this brief the NTOO discussed the agreed press statements to be utilised and ensure copies were made available. The CC attended several Joint Emergency Services Interoperability Principles (JESIP) Briefs and could provide updated information to the CES. IIW were distributed to CES Personnel and briefings regarding the hazards were provided to all personnel.

26. The CC held a JESIP brief with the CES at 13:30 in the CSV. Good information was provided to the agencies in attendance and all questions answered. The welfare of persons continuing to work inside the cordon was discussed and it was also made known that it took about 20 mins to process individuals through the TCP once they exited the cordon. The Police made their priorities known to the CC at the meeting and a battle rhythm for future meetings was established.

**Objective 4 - Support the On-scene Response - Emergency Response Activities**

<sup>9</sup> Major incident declared, Exact Location, Type of incident, Hazards present or suspected, Access routes, Number, type, severity of casualties, Emergency services present and those required

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27. Before STARTEX was called, discussions took place between DNSR assessors and [REDACTED] players as the convoy moved towards the incident site. This centred on the number and distribution of medical bags within the convoy and medical training of the convoy [REDACTED]. Of the [REDACTED] within this convoy, only two contained full medical bags. [REDACTED] implied they felt this was due to a lack of appropriate funding. The [REDACTED] also stated that they had not undertaken formal triage training and felt that this is a necessity for their role and should also be a requirement for other members of the IRF.

**TRR 0286: Consider the need for all of the [REDACTED] within active convoys to contain medical bags to ensure redundancy of medical supplies.**

**TRR 0287: Undertake review of [REDACTED] Medical training requirements to ensure appropriate level of training is undertaken.**

28. It was observed by a DNSR Assessor that [REDACTED] started the process of taping up their boots at 09:22, before the convoy set off towards the incident site at 09:48. There was further preparation for the incident with tape being applied to the ceiling of the vehicle for immediate access when the exercise officially began.

**TRO 0206: Distaff should ensure that players do not pre-empt activities that will need to be undertaken once an incident is declared**

29. STARTEX was called at 10:09 with the IRF fire tender the first to respond, arriving at the immediate incident site at 10:12. Casualty extraction started immediately, with fire service personnel removing the first casualty at 10:13 after initial triage suggested they could move. The final casualty was extracted at 12:40, however there was a 24-minute stop in play due to a NODUFF incident between 11:40 and 12:04. Most of the casualties were extracted before the NODUFF was called, with only 5 casualties remaining at this point. 4 of these casualties were situated within vehicles and therefore required mechanical extraction, significantly extending the amount of time required to remove all casualties.

30. Firefighting commenced within four minutes of the initial accident occurring and cooling of the [REDACTED] with a continuous spray was set up within another four minutes of the initial firefighting actions with a fire hose playing on the [REDACTED] by 10:20. The last fire tray was extinguished by 10:27. Fire fighters and those exiting the convoy vehicles were appropriately protected from the potential hazards. There were concerns that the convoy water supplies would be exhausted and the CSO requested back up water supplies as a result. Arriving CES firefighting teams were able to support the request but there was a period of approximately fifteen minutes when the rear of the [REDACTED] was not cooled whilst the back-up water supply arrangements were put in place.

31. Provision of the water from CES showed good integration between convoy fire support and CES, however at no point were CES fire support involved in the extraction of trapped casualties or the triage of casualties within the debris field. While the IRF Fire Service did an exemplary job, the abnormally warm conditions combined with their protective dress state has been identified as the root cause of the near miss which caused the NODUFF call that stopped play by the Exercise Safety Officer (ESO). A member of Di-Staff from MOD Fire Rescue intervened and forced the players to take short breaks on a rotation as he was concerned about heat exhaustion, however this call should have been player directed.

**TRO 0207: Procedures and training should be reviewed to ensure rotation of personnel can be managed appropriate to the conditions.**

32. During the triage of casualties' face masks were provided and IRF instructed the casualties to wear them. While this is an improvement on previous exercises and is good practice, there were issues in the number of available masks which meant some of the casualties did not receive a mask for the entirety of their time within the debris field. Discussion with [REDACTED] suggested this was due to there not being enough masks for the large number of casualties' present. The nature of the accident meant there was a high chance of radioactive particulates being present in the air. Without the provision of masks this would be easily inhaled. Furthermore, one injured person was seen to keep removing their mask but was not challenged by the IRF responders. However, when similar actions occurred near the cordon edge a short while later the public that were removing their masks were challenged and asked to wear their RPE.

**TRR 0288: Enough masks should be carried by the convoy to allow all casualties to be provided with their own for all foreseeable emergency scenarios.**

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33. All convoy personnel working at the immediate scene and in cordon were dressed and protected well against radioactive contamination hazards apart from two [REDACTED] who were not dressed to the same standards upon exiting their vehicles. They had areas of skin exposed to the elements, wore no hoods, and had not taped sleeves or trousers to boots or gloves with the result that sleeves rode up arms showing bare skin.

**TRC 0289: The IRF working inside the cordon were not wearing PPE to a consistent standard. All personnel within cordon should be wearing PPE appropriate to the hazards. This needs to be adhered to and enforced.**

34. One of the dummies representing a deceased casualty was removed from the scene of the accident within the first hour and taken to the edge of the cordon which should not have happened. Bodies should be left in situ and covered until it has been agreed with the appropriate civil authorities to move them to an appropriate location.

35. All casualties that could be moved were removed from the immediate scene in a managed way, initially to a staging position some 30m away from the immediate accident and in an area where they were given calming words and immediate medical support if required, before then being moved to the cordon edge for processing through the TCP when it was established or transfer to the CES if urgent hospital treatment was required. [REDACTED] were used to transfer the more serious casualties to the cordon edge pending further treatment and transfer to ambulances for transfer to hospital.

36. When moving the more serious casualties floor mats (provided for casualty comfort and which would not have been present in a real event) were used to carry casualties to the cordon edge.

37. CES did not enter the cordon other than one ambulance co-ordinator who stood near the cordon edge to manage the exit of the seriously injured to hospital and confirm triage information received from the IRF team members. The most seriously injured were wrapped on a stretcher to limit the spread of any contamination just inside the cordon edge by the IRF and then transferred across the cordon to the civilian ambulance service. By 12:11 the last of the most seriously injured had been taken to hospital in civilian ambulances.

38. There was a large amount of confusion during the debris field activities around the number of casualties' present. This was partly due to the simultaneous extraction activities of [REDACTED] and Fire Rescue and partly due to confusion in the use of P and H codes. P codes are utilised by both the CES and [REDACTED] to categorise how serious an injury is. The JOC request this information in the form of H codes, in accordance with the IRF manual. When this information is passed upwards to London, it is converted back to the original P code. Complicating the upwards flow of information in this way leads to there being a large chance of incorrect casualty reporting and general confusion as seen during SENATOR. This issue is to be addressed during the update of the IRF manual in 2019, see TRR 0251.

39. Overall the performance of the IRF in dealing with the emergency and triaging the casualties was adequate. The need for a stoppage in play due to the NODUFF situation was unfortunate and caused a definite decline in the urgency of action after play was restarted.

**Objective 5 - Support the On-scene Response – Security Activities**

40. All comments relating to this Objective are captured in Appendix B.

**Objective 6 - Support the On-scene Response - Monitoring & De-contamination Activities**

41. All radiation monitoring equipment used by the IRF was seen to be in calibration date.

42. Yellow monitoring commenced at 10:30 and was undertaken by the CSO. He walked towards the downwind side of the accident site until he started to measure some positive readings. He started monitoring from the fire vehicle that contained the detector located inside the cordon and correctly held the IS610 instrument at arm's length as he walked. He measured 2 counts per second (cps), then 10 cps, quickly followed by 20cps as he moved forward. At this point he stopped and reported the 20cps reading back to the CC at 10:32 with a description of the location of measurement. In cordon monitoring and proof of release of material was therefore completed within the required timescale of within thirty minutes of the accident.

43. White monitoring equipment, carried on the Convoy Support Vehicle (CSV), was used by the monitors to undertake the white monitoring task. There was a degree of artificiality, due to exercise



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constraints, as the monitors did not go off-site or to a range of locations on-site to carry out the task. When dressed, the 2 white monitors deployed to a location on site and were provided grid references and monitoring results by di-staff and these were reported at appropriate times. In this instance (noting the degree of artificiality) all 9 initial points were reported within the required 2-hour period following the incident.

44. Although the white monitors did not actually undertake the task they both had a good understanding of it and were able to clearly explain the method used, how to operate the IS610, when a recalibration with the check source would be required, which channel to use, use of GPS to determine grid reference for position reporting etc.

45. Being potentially contaminated on return from monitoring the 9 points they nominally returned via the Health Physics Control Point (HCP) before being de-briefed and redeployed to monitor further down wind (7km, 10km and 15km over the next 24h).

46. Set up of the [REDACTED] at the nominal 600m point had commenced by 11:00 and was considered to be operational in a suitable time.

47. The [REDACTED] was established in an upwind position on the edge of the cordon in an area that was monitored and confirmed to be clear of any radioactive contamination before the [REDACTED] was erected. At 12:34 the first two members of the public from inside the cordon were processed through the [REDACTED]. Monitoring technique was observed at several points during the day. Appropriate equipment was used, the techniques were effective (but at times the distance between the probe and person was larger than ideal, reducing detection efficiency) and calm explanations were provided to the individuals being monitored. The first people through took about 25 minutes to be processed and monitored with subsequent people taking 20 – 25 minutes. This is to be expected. Small areas of contamination on clothing that were identified on some individuals were dealt with in an appropriate manner. Care was taken to check for contamination under sleeve cuffs etc. Good teamwork was seen between the monitor and undresser.

48. The presence of contamination was injected by Di-Staff and this was dealt with appropriately; i.e. washed initially and then any remaining contamination covered (e.g. with gloves) to containing and allow for transfer to another facility for further decontamination.

49. Regular contamination checks were undertaken on the dirty side of the clean/dirty boundary inside the [REDACTED] as was monitoring of the helper stationed on the dirty side of the [REDACTED]. The team talked regularly to and helped one another. This was all good practice.

50. All monitors, recorders and helpers working inside the [REDACTED] wore the same PPE and RPE, except for the Team Leader who spent much of their time standing just behind the recorders. This individual chose not to wear a FFP3 face mask when all others did.

51. Due to the structure and timings of the exercise play radiation monitoring associated with clearing equipment and vehicles from inside the cordon as they exited was not observed. With the limited radiation monitoring resources available to the IRF it is likely that this role would have to be completed by follow on forces although such arrangements are not explicit in the associated documentation.

### Objective 7 - Integration of MOD NEO Follow on Forces (FoF)

52. The BRONZE command team arrived on site at 13:30 whilst a JESIP brief was being undertaken. The subsequent BRONZE Commander (Cdr) /CC handover brief was undertaken at 14:10 utilising the METHANE format. Formal handover was successfully completed at 14:30.

53. There was no handover brief from the CC to the incoming [REDACTED] Cdr due to the CC having to leave site. This caused exercise artificiality and following conversations with both Di-Staff and DNSR/DefNucSyR assessors, the [REDACTED] Cdr was given permission to walk the incident site to familiarise themselves with the scene. This allowed them to formulate their security/guarding plan.

### Objective 8 - Operation of MOD NEO FoF – Strategic/GOLD

#### 8.1 – MCA Executive Team

54. There was a clear flow of communication within the MCA GOLD team. The MCA was well supported throughout, with clarity of language and clear understanding of messaging and requests for information.

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Support was provided via an AWE representative and via DNO at Main Building as well as further input from Joint Regional Liaison Officer (JRLO). A drumbeat of internal briefings was established efficiently, and MCA was provided with relevant information through Chief of Staff (COS) and Executive Officer (XO)/Deputy XO interactions.

55. Information provided to the MCA from external sources in the early part of the emergency phase required several clarifications and challenges from the MCA. The MCA did not appear to be receiving the clarity of information and was required to recheck several items in early discussions with the JOC.

56. The manner of the MCA was judged to be too informal throughout the operation at GOLD. An example of this was in the imprecise language they used in describing the incident. Furthermore, a declaration was made that there was no risk of further release after the fire was extinguished, however, this excluded any potential resuspension risks. The declaration was made prematurely as this was prior to the [REDACTED] being visually assessed and several hours before an AWE stability statement was written.

### 8.2 – Scientific and Technical Advisory Cell (STAC)

57. MOD NEO STAC Representative engaged in virtual STAC activity in accordance with STAC SOP SWS001160 Issue 1 dated 17 August 2018.

58. The SOP identifies the MOD NEO STAC Participant as the MOD lead and as such co-ordinates the MOD contributions. From the STAC perspective the MOD lead is also the effective "Site Operator and Technical Advisor" as required by Control of Major Accident Hazard Regulations (COMAH) 2015. The SOP implies that the STAC Participant is the sole MOD representative and co-ordinates the views of the supporting MOD agencies in the meetings chaired by STAC Chairperson, however, in the virtual STAC contributors dial in directly and this was witnessed on the day of the exercise. This could potentially lead to conflicting information being presented to the STAC Chair.

59. The MOD player was fully conversant with the post and the challenge that operating a virtual STAC would present, while the Chairperson heading the STAC was based in Liverpool and several support players were based around the country (most notable Institute of Naval Medicine) 60% of the contributors were at GOLD and operated out of the PHE office space within at Penrith. The contribution to the STAC discussions by the MOD players was precise, informative and influenced the progression with the support of data generated by NERIMS.

60. Throughout the exercise the STAC liaison delivered advice to and was challenged by the Strategic Coordinating Group (SCG) and the MOD support to the STAC was recognised as effective. The MCA team's interaction and contribution into STAC was satisfactory. Recognition must be given to the operation of the virtual STAC approach being adopted and that the MOD NEO STAC SOPs reflect this.

### 8.3 – Media Briefing Cell

61. Initial activity to monitor media channels was limited, up to the release on social media by Cumbria Constabulary of confirmation of an incident involving Defence Nuclear Material (DNM) and application of sheltering and evacuation in line with Local Authority & Emergency Services Information (LAESI). MCA intervention with JOC was required to ensure the right messaging with respect to the incident site media approach. MCA conducted a press briefing in line with information received, although included casualty data that had not been formally confirmed by Cumbria Constabulary.

62. MOD Strategic Media Advisory Cell (SMAC) representative activities were in accordance with SOP SWS000579 Issue 8 dated 20 August 2018.

63. There was effective involvement with the PHE and Police Media representatives in getting the sheltering advice out to the general public, the Police Media requested an edit to the Public Relations Plan SWS000784 Issue 9 wording, which was interpreted by NEO SMAC as requiring the agreement of the MCA, it must be stated that this arrived within 15 minutes, but the need to issue advice to shelter is in the end to preserve the lead emergency service and if they request edits without effecting the content this should not require senior sign off.

64. The initial NTE yellow card NTE 1 from the IRF Manual would be forwarded to the CES by the JOC and this is the document that would be used by the CES to issue whatever statement they believe is

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necessary. It is part of the exercise artificiality that discussions on statements between Police Media and MOD SMAC would be taking place within the first hours of a NTE.

**TRR0290: Initial Press Statements that are issued by the CES should not require MCA approval as they are CES statements not MOD statements. However, any amendments should be reviewed for accuracy by appropriate MOD NEO Staff**

65. The first media brief by the Police to TV media was at 12:10 the statement was prepared with Police Media and MOD SMAC and witnessed by MOD SMAC for accuracy. Subsequent briefings were supported and witnessed by MOD SMAC and the MCA Media brief was conducted at 17:00 following briefs by all of the other agencies.

66. The flow of information to and from Head Quarters Defence Nuclear Emergency Organisation (HQ DNEO) and MOD SMAC via NERIMS was more pronounced than in previous exercises and the queries were dealt with in a timely manner, the only mismatch appeared with the press statements being made by Ministers in London not being checked for consistency with the information or inputted into the SCG.

### 8.4 – SCG Attendance

67. MCA attendance at SCGs was established from the outset and maintained throughout. Briefings provided the latest information received at GOLD. Statement in the SCGs were generally clear, with relevant information presented.

68. However, there were instances where MCA's communication was not always completely effective as incorrect information was not always corrected quickly enough. Specifically, a comment that there was an inaccurate statement made regarding the load being transported which was allowed to go unchallenged until the next meeting of the SCG.

### 8.5 – Co-Ordination with MOD NEO HQ

69. A drumbeat of interactions between GOLD and HQ DNEO was established early, and two-way requests being made routinely through telephone and NERIMS. MCA requests for direction and advice were made and responded to, although requests from Cabinet Office Briefing Room (COBR) were slow to arrive at GOLD.

70. COBR did not include the GOLD Commander or the MCA. The output and questions originating in COBR were not posed at the SCG which had the effect that COBR had no real impact on the activities carried out at GOLD. Further to this, there were no injects included in the MSEL to direct challenges to GOLD from Central Government.

71. Although not formally assessed it was noted by the DNSR players at HQ DNEO in London that there was a marked improvement in communications from previous exercises.

### 8.6 – Interface with BRONZE & SILVER

72. Early communications were established with the BRONZE Cdr; and regular updates were provided until handover at the incident site. There were effective communications between GOLD and SILVER on areas relating to highways and movement out of cordon.

## **Objective 9 - Operation of MOD NEO FoF – Tactical/SILVER**

73. Operations at SILVER were undertaken in accordance with the SILVER Liaison Officer SOP SWS000811 Issue 6 dated 17 August 2018 and NERIMS Operating Procedures SWS000549 Issue 6 dated 24 August 2018. The MOD personnel deployed had integrated with the Tactical Co-ordinating Group (TCG) utilising information forwarded via NERIMS. Operations within SILVER were enhanced by having a video link to the SCG by which commitments made at that meeting were recorded by the TCG without the need to relay actions. The TCG chair confirmed that the interaction and clarification of the hazards by the MOD personnel had been demonstrated and assisted in the operations within Tactical.

74. In the SCG meeting held at 11:06 MCA identified that the [REDACTED] would deploy an officer to SILVER, however it was observed that this commitment had not been followed through when the assessment of SILVER was conducted and it appears that this commitment was not recorded by MCA team. A Military

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Liaison officer from the Military Monitoring Force (MMF) was deployed to SILVER by Di-Staff injection, however, according to the MSEL MMF was not due to arrive until 17:00. It was not clear if the MMF deployment was to cover the commitment made by the MCA or injected by Di-staff to cover a shortfall in the SILVER operations.

**TRR 0291: Commitments made by the MCA at SCG meetings need to be recorded and acted upon.**

**Objective 10 - Operation of MOD NEO FoF – Operational/BRONZE**

10.1 – Functionality of BRONZE Command

75. Actions undertaken by the BRONZE Command Team were in accordance with SWS00406 BRONZE Command Guide Engineering Order 4 Issue 8 dated 20 August 2018. A review of the BRONZE Cdr Go-Bag was undertaken, and all correct documentation was available.

76. On completion of the handover from the CC the [REDACTED] was handed over to the MMF at 15:56 and the first briefing with AWE advanced party was conducted at 16:13. A more detailed recce of the incident site was required and discussions along with Explosive Ordnance Department (EOD) and 42 GEO concluded that a drone could be utilised to save personnel having to enter cordon. This would provide vital information to support generation of the AWE [REDACTED]

77. The AWE [REDACTED] was submitted at 17:34 for BRONZE Commander approval. BRONZE Commander declared the emergency phase over after approving [REDACTED] from AWE on the 10/10/18 at the day end. Day 2 of the exercise therefore started immediately into the recovery phase.

78. The approval of the AWE [REDACTED] was not clearly communicated across the site. As a result, there was uncertainty on whether the [REDACTED] who were appropriately dressed, should be allowed to enter the cordon without a Recovery Task Plan (RTP) in place.

**TRO 0208: Clear communication is required to ensure all personnel are aware that the recovery phase has begun and subsequently what procedures are then invoked in order to avoid unnecessary delay to cordon entry in the emergency phase.**

79. BRONZE Cdr held his first meeting with all Team Leaders at 11:20 on Day 2. He set the scene, relayed the priorities that had been issued from GOLD and provided his own priorities for the team. A drumbeat of BRONZE Cdr Briefings was established to ensure regular communications were established. Although that standard Agenda within SWS000406 Card 15 Annex B was utilised the notes and checklists in Annex C and D weren't.

**TRO 0209: Utilisation of the Annexes in SWS000406 Card 15 should be used to ensure that no updates/information is missed during BRONZE Cdr Briefs**

80. Progress on achieving the priorities set by GOLD were rarely discussed with no clear deadlines being set on the Team Leaders to have key activities completed. During the Hot Wash it was discovered that key activities in relation to ensuring the motorway could be re-opened and the removal of the fatalities had not been completed.

81. A discussion was held with BRONZE Cdr and Exercise staff regarding the catering facilities as he wished to move these closer to site to reduce the time taken to feed all personnel. This was an area of debate throughout the Exercise and distracted personnel from demonstrating the capability. Discussions with the catering staff indicated that in a real event they would be situated a greater distance away and therefore the logistical challenge would have been greater. BRONZE Cdr left management of releasing personnel to Team Leaders, however, provided no forward look to activities that were to be planned. A more proactive approach could have been taken by looking at the planned activities and prioritising personnel to ensure that key activities could still be undertaken whilst ensuring all staff were fed.

82. Discussions were witnessed between BRONZE Cdr and the DNSR Competent Authority (CA) regarding the onward transport of the unaffected assets. This was pushed up the chain to GOLD and COBR for a decision on the assets destination. There were several debates on what documentation would be required to allow the convoy to re-constitute and leave the site with no clear way to resolve. As a result of discussions between the DNSR assessor and Exercise Director it was agreed that a Di-Staff inject would be

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undertaken to move the unaffected assets, so the BRONZE team could concentrate efforts on recovery of the material on site.

**TRC 0292: There needs to be clear agreements between DNO and CA regarding the documentation requirements to move an unaffected convoy post an NTE**

83. After the unaffected assets had been removed there were further discussions between the BRONZE Cdr and the CA in regards the Consigner of the material found in the debris field once packaged. BRONZE Cdr made the decision that he would perform this role with no advice requested from GOLD. This responsibility is not captured within the current BRONZE Command Guide. As a result, it is unlikely that he would be suitably qualified or experienced to undertake this role.

**TRC 0293: Identification of key personnel i.e. Consigner/Consignee who are responsible for the subsequent transport operations post an NTE are required. Once agreed suitable training should be undertaken to ensure they are SQEP.**

84. During play BRONZE Cdr hosted a visit from the MCA, Minister for Armed Forces (Min (AF)) and the Press. He proceeded with a tour of the site and introduced the VIPs to the various Team Leaders. The BRONZE Cdr and MCA were able to answer all Min (AF) questions confidently regarding the safety of the debris field.

BRONZE Site Layout

85. The BRONZE site was not set out in accordance with BRONZE Command Guide due to local topography therefore issuing of a BRONZE site map at an early stage would have been useful to the operational cells.

**TRO 0210: Issue of a BRONZE site map at an early stage would have been useful to the operational cells.**

86. Due to the weather conditions there were several hazards at the BRONZE site. These were briefed by Emergency Site Health Group (ESHG) during the BRONZE Cdr briefs. Although Health and Safety (H&S) Plans and Risk Assessments were on NERIMS these were not readily accessible to all. H&S signage was visible round the BRONZE site; however, this was not done in a timely manner.

**TRR 0294: There is a need to ensure H&S plans and signs are in place and easily visible in a timely manner**

Health Physics Cell

87. The Health Physicists were actively checking NERIMS and identified several monitoring points that were displayed in the wrong colour for the readings represented and worked to get the data corrected (see NERIMS below).

88. The expected level of interaction between the HP Cell and the MMF did not occur with the 2 teams operating largely independently.

NERIMS

89. The use of NERIMS was the primary vehicle for capturing and requesting information during the exercise. Prior to the first Procedural Acceptance Group (PAG) meeting the CA was provided with a spare NERIMS terminal. This resulted in this terminal being available to the assessment team to allow them also to review documentation and track the flow of information.

**TRO 0211: For the future the CA should be provided with a NERIMS terminal.**

90. There is a pre-agreed colour coding associated with varying levels of radiation measured that are normally displayed on mapping products. The colours displayed on mapping products on NERIMS did not match what was expected and caused some confusion amongst players. The errors were due to coding within NERIMS; one set of points was plotted incorrectly by a factor of 1000 times due to confusion between Bq and KBq while at another point a "0" reading was incorrectly coded as purple.

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91. While the first case had previously been notified to the NERIMS developers both cases are a clear indication that quality assurance testing and version control are not being managed effectively. There was willingness by Datel personnel to update NERIMS during the exercise, potentially adding to poor version control and resulting in unintended consequences.

**TRR 0295: Arrangements for the configuration control and acceptance of changes made to NERIMS in the future should be reviewed and applied.**

10.2 - Functionality of Emergency Site Health group (ESHG)

92. By 16:10 the ESHG had approved 4 RTPs but was unaware of any air sample results from the BRONZE site.

93. The ESHG set default dress states for working in-cordon and distributed local rules for working in the area. They were involved in the development of RTP's and participated in the PAG. The use of NERIMS to distribute the RTP's aided review work associated with them to be undertaken more expediently, although this did not stop specialists in the cell from engaging with plan authors or contributors when necessary.

94. Although an RAF medical adviser was expected to participate in ESHG activities there was no medical expertise within the ESHG at all and as a result there was discussion whether the EOD search team should enter the cordon as there would be no capability to deal with any potential injuries sustained. The ESHG was therefore not fully constituted. The manning requirement should be confirmed as currently ESHG are currently responsible for providing advice on individuals contaminated/injured during emergency site operation.

**TRC 0296 : ESHG manning to be confirmed as if no medical advisor is present responsibilities within BRONZE Command guide cannot be delivered**

95. As part of the assessment of the ESHG functionality, a NERIMS check was carried out to ascertain whether important site safety documents had been uploaded. Both the site Risk Assessment and H&S documentation were uploaded onto NERIMS at 14:40 on 12/10/18, the third day of the exercise. As both documents were available before the start of the exercise they should have been entered onto NERIMS much earlier. Further, it was unclear to the Regulator whether safety announcements regarding fire muster points were made at any time during the exercise.

96. The management of H&S at the BRONZE site was confused at times with Exercise H&S Team taking over when a fuel bowser impacted a Mobile Accommodation Unit (MAU). This resulted in an unnecessary NODUFF situation that could have been handled by the ESHG Team and play could have continued.

**TRO 0212: There is a need to ensure that Exercise Safety Documentation has been understood and being followed to avoid unnecessary NODUFF situations**

97. During a visit to the ESHG MAU no information was present on that State Boards. On enquiry there seemed to be uncertainty on what information should be captured and where it would come from.

98. Assessors witnessed [REDACTED] standing next to a covered component. When asked if they were aware of what the component was and any potential hazards the assessment team were informed that the [REDACTED] staff had not been briefed. This conversation was overheard by Di-Staff who informed the [REDACTED] he was stood next to [REDACTED]. The resulted in the [REDACTED] informing their command and resulted in an update security cordon to ensure personnel were not stationed next hazardous material.

**TRC 0297: ESHG personnel to ensure all personnel entering cordon are briefed on the hazards. These briefs should be updated when additional hazards are identified**

10.3 – Functionality of MMF

Mobile Alpha in Air Sampling Laboratory (MAASL)

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99. The previously available gamma spectroscopy equipment is no longer operational and has not been replaced. Consideration should be given as to whether this forms part of the required capability for response to NW or SNM incidents.

100. The MAASL was staffed to a single individual throughout the exercise. This would be unsustainable for an actual incident and was only practicable during the exercise because of the artificiality of timed meal breaks and daytime only operation.

**TRO 0213: Designated manning for the MAASL should be sufficient to meet to the challenge posed by actual events as well as exercises.**

101. During the first day's play of the FoF only one air sample was received for analysis by the laboratory. This was from the air sampler running inside the HCP. The following day throughput increased largely through proactive communication between players to make it happen rather than anyone particularly following any written instructions. Eventually a regular pattern of running air samplers on the BRONZE site was established by the MMF to check for any radioactive contamination in the air in the operational working area. No thought seemed to be given to establishing air samples at areas of interest inside the cordon area.

102. Initially the MMF team did not have a sample form that met the MAASL sample receipt requirements or any "spiders" to put filter papers in before attaching them to the air samplers. Some spare filter papers held in the MAASL were not a correct size for the "spiders", although laboratory procedures specified the correct size. Correct filter papers and additional spiders were located later during the exercise. Deploying RAF teams were asked to use Nuclear Emergency Monitoring Team (NEMT) sample forms to record the taking of air samples in downwind areas but were not familiar with all the terms on the form and at times there was uncertainty about how long to run air samplers for. These problems were overcome; however, there were other equipment shortfalls such as a drying oven not being held in the MAASL to dry any wet or damp filter papers before analysis. The arrangements for the default air sample strategy to be followed, sample collection, and analysis would benefit from review.

**TRR 0298: The arrangements for the default air sample strategy to be followed, sample collection, and analysis would benefit from review.**

103. Four L10B air samplers were eventually used in each corner of the BRONZE site however one of the samplers was out of calibration. Serial number 1995/5 had a label stating calibration was due on 3 Sept 18. All Radiation monitoring equipment used should be in calibration.

**TRO 0214: One of the L10B air samplers used on the BRONZE site to establish radiological safety was not in calibration date.**

Nuclear Emergency Monitoring Teams (NEMT)

104. NEMT deployed from the BRONZE site in their Defence Monitoring Vehicles (DMV's) at the direction of SONEMO and under the control of a Monitoring Controller to undertake ground deposition monitoring along identified highways in the downwind direction of the emergency site. The taking of measurements and reporting of results was seen to be effective.

105. On return from extended downwind monitoring the BRONZE Commander denied the DMV access to BRONZE due to the potential for contamination. It was apparent that there are no established arrangements for returning monitoring teams to the BRONZE site who have been operating in the downwind hazard area beyond the 600m cordon and who with their vehicles and equipment may have become contaminated. Some arrangements were put in place for the first monitoring teams deployed on day two to monitor the returning teams and quarantine equipment and vehicles, and these were further refined on day three of the exercise.

**TRR 0299: Arrangements are required for the management of returning radiation monitoring teams, their equipment and vehicles, who have been operating in the downwind hazard area beyond the 600m cordon.**

Down Wind Monitoring Force (DWMF)

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106. After some prompting by Di-Staff, 2 teams were readied for deployment to carryout downwind monitoring beyond the area covered by the White Monitors. It had been previously agreed that the DWMF would not deploy off the Longtown site. However rather than demonstrate their on-site capability (monitoring or use of PPE etc) the 2 teams relocated to another building and entered monitoring data provided by Di-Staff into W1 forms on NERIMS. Monitoring results are generally radioed back to the MMF MAU and then entered into NERIMS in the MMF MAU. Attempts to enter readings into NERIMS by the monitoring teams in-situ led to several issues; weak mobile phone signal preventing data being uploaded to the NERIMS network and the deployed teams tried to complete air sampling fields (which required data they would not have had and did not understand, e.g. alpha drawer efficiency) as well as those for ground deposition monitoring. This demonstrated an incomplete understanding of their role (di-staff were also unfamiliar with how the DWMF operated and so were unable to provide the appropriate inputs).

107. The monitoring data provided to the DWMF should have been linked to grid references, however it was provided as Eastings and Northings. Credit is due for the DWMF diligent work to convert these into grid references that could then be entered into NERIMS in the normal way.

108. On the Friday of the exercise the DWMF was tasked to undertake practical ground contamination and air sampling at various locations. This was observed and seen to be conducted generally satisfactorily, albeit with some prompting from di-staff. While the monitoring teams knew what/how to monitor they were clearly inexperienced in the task. Instruments used (IS610As) were not plastic wrapped to protect against contamination. However, techniques used to take what were background measurements at that time were adequate and the results were effectively reported back by radio. Air samplers were run to collect 10-minute samples and waste materials were collected and bagged to minimise the potential for cross contamination.

109. The OCMMF sent two RAF monitoring teams out to undertake downwind monitoring protocols to 10km distance but did not initiate other standard monitoring protocol initiatives. It is noted that the standard default monitoring protocols are laid out differently and in different order in the IRF manual and JSP483 Vol 3<sup>10</sup> which perhaps does not assist those meant to implement the protocols. It is also noted that the default monitoring protocols recommended monitoring downwind out to 20km.

110. The standard monitoring protocols also ask for ground deposition and airborne contamination readings to be undertaken at the BRONZE site to establish radiological safety at regular intervals. Although regular air samples were eventually collected around the BRONZE site in each of its four corners, no ground deposition measurements were seen to be taken at the same time. Additionally, regular in-cordon monitoring was not undertaken as described in the standard monitoring protocols to support task recovery plans.

**TRR 0300: Default standard monitoring protocols should be consistent across supporting plans and policy and implemented unless there is good reason not to that has been agreed at the strategic level.**

2MBq/m<sup>2</sup> Contour

111. There was no discussion of, or attempt to delineate, the 2MBq/m<sup>2</sup> contour either in the HP Cell or the MMF MAU.

112. On Friday morning there was confusion over whether the 2MBq/m<sup>2</sup> Contour had been plotted even though no monitoring team had been tasked with this action which should have been completed the previous day. The task was initiated early in the afternoon following questioning some way into the exercise by the regulatory assessment team. This resulted in a demonstration of the task taking place alongside other ongoing work. The departing team was adequately briefed and appropriately dressed. It was noted that the IS610As used were not polythene wrapped, despite the intention to use them in areas of known contamination. During discussions it became apparent that the operators believed that wrapping was not appropriate because alpha particles cannot penetrate the polythene. This is correct but the IS610A is designed to detect the X-ray emissions from plutonium rather than the alpha emissions. There is a clear training need to enable effective operation of the monitoring teams.

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<sup>10</sup> JSP483 Volume 3 – Nuclear Emergency Organisation Arrangement and Objectives



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113. The teams were also not clear on how to delineate the 2MBq/m<sup>2</sup> Contour. Written protocols for this task were not in evidence. The demonstration was adequate, but it was recognised that the team was inexperienced and required significant instruction from others including directing staff.

114. The difficulty in initiating and undertaking this monitoring task may indicate issues that require exploring associated with MMF training and MMF training packages may require review.

**TRR 0301: The review of MMF training packages to support this operation should be considered to ensure appropriateness, particularly in the light of changing responsibilities of future support in the area.**

Monitoring Support

115. Initially SONEMO and the OCMMF appeared to be working in isolation to one another. Each had radiation monitoring resource, but it was unclear who was in overall control of the radiation monitoring support or if regular meetings were being held to discuss and formulate a monitoring strategy. The use of MAU's was not optimised to enable radiation monitoring requirements to be coordinated from one management area. SONEMO was based in one MAU with NEMT and health physics support, whilst OCMMF was in another MAU that was also occupied by 42 GEO Regt SST. As the exercise progressed a more joined up approach was taken.

116. On this exercise proactive support from the Health Physics Adviser located with the MMF to assist with overall monitoring strategy was limited. It is understood that what was the Radiation Monitoring Group is now collocated at the operational BRONZE site to have all radiation monitoring resource in one location, with the cell monitoring leaders assisted by a Health Physicist on site and reach back and quality assurance of monitoring information input to NERIMS undertaken remotely in Alverstoke.

**TRO 0215: The use of MAU's was not optimised to enable radiation monitoring requirements to be coordinated from one management area.**

HCP Operation

117. At approximately 09:30 the [REDACTED] was removed and the HCP (part of the follow-on force) was made operational. Initially the HCP was set up with the in and out routes reversed which compromised the integrity of design that helps controls the spread of any potential radioactive contamination inside the facility. With directing staff assistance, the set up was changed before the day progressed.

**TRO 0216: HCP procedures should be carefully followed unless specialist advice is sought. Ad hoc changes are likely to compromise radiological safety.**

118. Once set up properly the HCP operation worked reasonably well. Checks for paperwork, proper dress state and RPE fit were made on all teams entering the cordon to work. Returning teams were monitored for contamination in a reasonably effective manner. Members of the DWMF were observed while being monitored through the HCP. Monitoring speed was generally acceptable, if a little fast. The distance from the surface monitored was greater than ideal at times, so limiting detection ability. Clear instructions were given to those being monitored with good questioning re welfare and potential for contamination. Where there was low potential a "head, hands, feet" approach was taken which was considered appropriate although there was no understanding that wet over-boots could not be monitored for alpha contamination. Where contamination was expected then a CBR undress technique was followed with the outer sacrificial layers being removed by the HCP team, which was done effectively. However, there was no subsequent monitoring to confirm that individuals were "clean". To be fully effective if this is the approach to always be taken at the HCP all teams entering the cordon should be wearing sacrificial layers of clothing and PPE. This was not the case on the first day of Follow on Force exercise play.

119. It was noted that the [REDACTED] entered the controlled area without any radiation dosimetry which was not in accordance with RTP plans or the local radiation rules for working in-cordon. Upon questioning the [REDACTED] recognised that they should have brought their own radiation dosimetry for the demonstration exercise. The HCP does not hold spare radiation dosimetry to issue to people entering the cordon area and supporting follow on forces are expected to bring their own.

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10.4 – Planning, Identification, Recovery and Packaging of Defence Nuclear Material

120. Throughout the Recovery Phase there was adequate demonstration of the planning process for cordon entry to identify the DNM present. RTPs were drawn up, reviewed internally before being passed to the PAG for approval. BRONZE command was kept up to date on the status of the plans via the Engineering Safety Function (ESF), who updated the boards within the BRONZE Command MAU with the estimated time of RTP completion and the PAG board they would go before.

121. RTPs for PAG assessment are managed via NERIMS with access being controlled by the ESF. RTPs are generated in the planning cell from template RTPs (e.g. produced during previous exercises or deployments). Those needing to input to the RTPs are able to see them online. There are clear benefits to electronic processing of RTPs and, as noted elsewhere, there was no evidence that access was restricted by the availability of NERIMS terminals.

122. The first PAG meeting was held at 15:00 on Day One and authorised the [REDACTED] to continue their guard rotation within the cordon. There was confusion within the group as this meeting was originally supposed to authorise entry to identify possible DNM, however the planning team dealt well with the emergent priority to authorise the continued guarding of the site. At 16:00 the PAG approved cordon entry to undertake an initial search of the debris field, focussing on 12 points identified as likely contain DNM. Approval meant that the first cordon entry by NEO FoF took place at 17:00, identifying material and covering DNM with tarpaulin. The meeting also discussed the general plan to enter cordon to set up floodlighting, allowing work to carry on through the night. However, while the procedure for the plan was approved it was agreed to hold final BRONZE Cdr approval until several caveats brought up in the meeting were closed. The caveats were that the wind speed at which the lights would topple was unknown, this coupled with the unknown extent of the debris field it was deemed unsafe to carry out the plan until further information was gathered.

**TRO 0217: Safety issues should be resolved before an RTP is brought before the PAG for approval.**

123. Due to the length of time required to formulate a plan and take it through the entire planning process, the Regulator agreed with Di-Staff that later plans would not have to go through the full PAG, as witnessing of several meetings provided confidence in the process and were content with its veracity. However, this approach was not adopted and DNSR assessors felt that SENATOR 2018 was used as a method of training players as opposed to demonstrating a response capability. These RTPs could and should have been pre-prepared with only minor changes required relating to unique topological features and inclement weather.

**TRR 0302: Assessed Exercises should not be used as Training events for players as the purpose is to demonstrate a response capability. Modular Training sessions should be undertaken for various roles to ensure all rostered NEO personnel are SQEP.**

124. Further demonstration of identification and recovery planning was on show day three, with plans formulated for cordon entry and successfully carried out. Equipment to mark out grids was taken into the cordon and later EOD carried out a more thorough search to find all remaining debris. The EOD search was executed well, and they were witnessed finding several hidden pieces of debris. The amount of time EOD had to search was limited, as other engagements meant they had to leave the exercise at the end of this day. This led to the unfortunate situation that we were unable to observe and assess their approach to the removal of the explosives from the debris site. This is not covered under an assessed objective and so has no impact on overall adequacy of the exercise, however would have been a useful process to witness as an explosion could lead to resuspension of contamination.

125. Although the debris is tagged on initial identification there is no traceability when moving between the various debris grids. For the demonstration this was not a big issue due to the limit number of material that was being moved. However, if there was a large amount of debris being moved there is no clear mechanism for tracking the material from the debris field into the package. The processes for undertaking this operation is split over several processes and therefore this could be alleviated by combining these together.

**TRO 0218: Consider merging processes into single document to ensure materials can easily be tracked through identification into container loading**

126. The processes were well executed with all personnel adequately performing their duties. Good communication was witnessed between the AWE and NGF personnel during this operation.

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127. The initial packaging plan derived by AWE was to utilise the appropriate Type B containers for the weapon sub-components and via the Reach Back function with AWE the following containers (AWG668 x 2, AWG630 x 4 & one AWG516/7/8) were identified and were despatched to the incident site at the end of day one of play. The follow-on forces arrived with two AWG670 containers which were the containers utilised in the end for despatching the recovered DNM. The debris field had not been sufficiently mapped at the end of day one to have any certainty as what material would end up being recovered but the plan submitted to the CA covered most of the likely options. The deciding factor on how the DNM would be packaged would be developed as the recovery action progressed. Several discussions were undertaken with the CA to allow approval of the packaging to be used. There is currently no documentation that discusses interaction with the NEO team and the CA, furthermore, the DNSR documentation on how to liaise with the NEO is lacking.

**TRC 0303: NEO documentation should be updated to reflect interactions with the Competent Authority in gaining agreement on transport and packaging**

**TRC 0304: DNSR documentation should be updated to reflect actions to be taken and information required to allow approval of packaging and transport post an NTE**

128. During the handling, cross cordon transfer and packaging of the material there were a significant number of personnel in the area. This seemed unnecessary as they were providing no value. The reason for this seemed to be that they had never seen the containers loaded and were interested in seeing these activities being undertaken. Overall this section of the demonstration seemed more akin to a training exercise which caused unnecessary distractions.

**TRO 0219: There is a need to ensure that only essential personnel who are demonstrating the capabilities are involved in activities.**

**Objective 11 - Operation of MOD NEO FoF – Support Base**

129. The Base Support Team (BST) is comprised of eight personnel: The Officer-in-Command, one Motor Transport Officer, two drivers, one Quartermaster, and three Forward Admin Cell clerks.

130. NEO maintains a three-person-deep BST capability. At all times, one shift is available at six hours' notice, and a second shift is available at 12 hours' notice which will enable an immediate 12-hourly shift rotation. A third shift, initially off-duty, will be able to respond in time and relieve this to an eight-hourly shift rotation.

131. The Support Base is also responsible for sourcing accommodation for NEO responders. This accommodation function was not demonstrated for this exercise due to accounting and welfare concerns but has been demonstrated at previous exercises.

132. The Support Base holds copies of a number of SOPs, including their own (SWS001155) which is on-hand and dated corrected (17 August 2018).

133. Access control to the site was established on day 2 through the Forward Admin Cell (FAC) and Tactical Provost Squadron (TPS) point (manned by RAF Regiment).

134. The function of the Motor Transport Office (MTO) was effectively demonstrated for the duration of the exercise, through the use of coaches between BRONZE and the Support Base.

135. Accessibility issues were resolved from day 3 onwards through the verification of VRNs at the (TPS) point to ensure that no more vehicles than necessary were permitted into the exercise location. This was successfully demonstrated by unregistered vehicles being turned away from the TPS.

136. It was highlighted that NERIMS can be used in a service request capacity, to request transport from the MTO. However, the OIC reiterated the fact that NERIMS is primarily for recording actions and that Airwaves are the primary and preferred form of communication for such requests.

137. The function of the Quartermaster was effectively demonstrated throughout the duration of the exercise, through the daily issue and muster of Airwaves and NERIMS terminals.

138. A 100% muster of airwaves and NERIMS takes place at exercise close of play each day which are locked away with on-site [REDACTED]

**Objective 12 - Operation of MOD NEO FoF – Reach Back**

139. There was a good brief provided by the Reach Back Team Leader (RBTL) to his team, including refreshing their awareness of the systems and processes, and the location of supporting documentation. The Reach Back (RB) team did not all have access to [REDACTED] or [REDACTED] though the RBTL did have access in case classified documentation or communications were required.

140. RBTL does not have an issued Government Procurement Card (GPC), though one has been requested, but has not been forthcoming. There is no ability to purchase items that may be required at short notice for the BRONZE site through RB without it.

141. The process for producing and delivering the new Movement Order was demonstrated and the knowledge and capability displayed was excellent. Consideration was also demonstrated to include safety and security changes through. No negative comments on this objective.

142. Further to the demonstration of Reach Back by AWE in ordering the containers the identification of the Consignee, review of the delivery of Standard Emergency Response Packaging Procedure (SERPP) P001 Special Arrangement Application Process, identification of the "safe to ship" was developed by AWE under the Reach Back function, part of the deployed AWE was a criticality SME, so this was conducted at site. The "safe to ship" statement detailed why each of the deployed containers were considered but not utilised and the AWG670's submitted to the CA for approval to dispatch the DNM.

143. The identification of the DNM and its movement out of cordon would have been supported by a packing plan including the identification of the unique Accountable Nuclear Material to be moved out of the debris field, this was discussed within the AWE classified Mobile Accommodation Unit with the AWE lead, Criticality SME and CA. When the Di-staff inject moved the material from identification to cordon edge this bypassed the formal issuing of the packing plan, however, the logic within the plan was discussed and through interactions with the AWE team approval the packing approach and subsequent selection of the containers to be used under the Special Arrangement.

## Appendix B – SENATOR 18 – DefNucSyR DETAILED ASSESSMENT



# Defence Nuclear Security Regulator

<b>EXERCISE REPORT</b>		
<b>Exercise SENATOR 2018 – Post Exercise Report (conducted 10 – 14 October 2018)</b>		
<b>Prepared By:</b>	<div style="background-color: black; width: 100px; height: 50px; margin: 0 auto;"></div> <b>Lead Inspector, Transport DefNucSyR-I2</b>	<b>Date:</b> 29 Nov 18
<b>Reviewed and Approved by:</b>	<div style="background-color: black; width: 100px; height: 50px; margin: 0 auto;"></div> <b>Principal Inspector, NW/Transport DefNucSyR-PI1</b>	<b>Date:</b> 29 Nov 18
<b>Release</b>	DNO WDel-T-DepHd	
<b>File Reference:</b>	DefNucSyR/4/4.13/60	

## References

- a. JSP628, Security Regulation of the Defence Nuclear Enterprise – Interim Arrangements, V1.0, Jun 17.
- b. JSP471, Defence Nuclear Emergency Response, Part 1, V2.0, Oct 18.
- c. JSP483, Volume 3: Nuclear Emergency Organisation Arrangements and Objectives, Issue 8, May 12.
- d. Immediate Response Force Manual, Issue 10, 10 Aug 18
- e. OPERATION BANKNOTE, Issue 2, 1 Oct 13
- f. Letter of Understanding between DefNucSyR and DNSR on Matters of Mutual Understanding, signed 20 Feb 18

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EXECUTIVE SUMMARY

1. The Defence Nuclear Security Regulator (DefNucSyR) carried out an assessment of the security response at Exercise SENATOR 2018, a Level 3 demonstration of the MOD Nuclear Emergency Organisation (NEO) response to a Road Convoy Incident requiring activation of Reference E. It was held between 10 Oct 18 and 14 Oct 18 at MOD Longtown, Cumbria, with Day 1 supported by civil emergency services (CES), from Cumbria Fire & Rescue, Cumbria Constabulary and the North-West Ambulance Service, and by local authority representatives. The exercise on days 2 to 5 focussed on the MOD NEO Follow-on-Forces recovery operation as defined in Reference E.
2. This was the first formal assessment of a NEO exercise by DefNucSyR since declaring Mature Operating Capability (MOC) in May 18. The DefNucSyR assessment was conducted alongside colleagues from the Defence Nuclear Safety Regulator (DNSR) and sought evidence of effective security arrangements against the agreed security objectives for the exercise. This report outlines the findings and observations against those objectives and covers the following activities:
  - a. The Incident Site response (Immediate Response Force (IRF))
  - b. The GOLD activities during the Emergency Phase
  - c. The JOC activities during the Emergency Phase
  - d. BRONZE location activities during the Recovery Phase
3. DefNucSyR assessed that security was given suitable prioritisation and attention by all participants throughout the phases of response that were demonstrated by SENATOR 2018. The extensive planning required for a Level 3 exercise meant that the scenario was widely known in advance, and the safety-driven incident nature of the scenario did not test the security elements beyond routine operations. It also meant that the process of establishing whether an incident is the result of an accident or a malicious act was not tested; this is an area that requires some further work, before formally testing through exercise.
4. Security throughout the exercise was taken seriously, with good practices observed for physical, personnel and information security. Any areas of potential weakness have been highlighted in the report and recommendations raised as appropriate. A number of the recommendations that are raised by this report pertain to ensuring that systems that would support a NEO response are suitably accredited, to ensure the information that they process is appropriately protected.
5. DefNucSyR and DNSR assessment teams mutually supported each other to make an assessment across all exercise objectives. Therefore, DNSR observations of the exercise have supported the generation of this report, and DefNucSyR observations have been provided to DNSR to support their report of the exercise, which is therefore complementary to this report.
6. Overall, DefNucSyR assesses that SENATOR 2018 gave an **ADEQUATE** demonstration of the security arrangements associated with an MOD NEO response to a road convoy incident, and the subsequent recovery operations. This report identifies 2 Security Corrective Action Requirement (SyCAR) and 5 Security Recommendations (SyRec), as follows:
  - a. **SyCAR/S18/001** – The SISYS system should be registered with ISS DAIS on [REDACTED] in order to undergo the accreditation process, and a review conducted to confirm if it remains fit-for-purpose.
  - b. **SyCAR/S18/002** – [REDACTED]
  - c. **SyRec/S18/001** – [REDACTED] if required, a process for [REDACTED] The process should then be added to the JOC and HQ NEO SOPs.
  - d. **SyRec/S18/002** – The JOC SOPs are updated to reference the extant version of JSP440 Supplement 1. Any hard copy versions that are held that are no longer applicable should be removed from the JOC document storage.

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e. **SyRec/S18/003** – That [REDACTED] conducts an information assurance review of their equipment to ensure the cryptography is in-date, and the accreditations are valid and compliant with extant DAIS policy and triage rules.

f. **SyRec/S18/004** – [REDACTED]

g. **SyRec/S18/005** – DNO NEO are to confirm that the [REDACTED] are able to continue to support Op BANKNOTE. If not, then a suitable alternative, with similar powers of arrest, is to be identified and agreement sought for support. OP BANKNOTE is to also be updated to reflect any changes.

6. In accordance with paragraph 53c of Part 1 of Reference A, DefNucSyR expect a formal response with a plan for addressing the SyCARs within 30 days. All of the Security Recommendations will be discussed during routine engagement by the Lead Inspector for Transport with the DNO Transport Operations Group.



## INTRODUCTION

7. Exercise SENATOR is a Level 3 demonstration of the MOD Nuclear Emergency Organisation (NEO) response to a Road Convoy Incident requiring activation of Op BANKNOTE [E]. Exercise SENATOR 2018 (hereafter referred to as SENATOR 18) was held between 10 Oct 18 and 14 Oct 18 at MOD Longtown, Cumbria. Day 1 of the exercise (referred to as Phases 1 & 2 or the Incident and Emergency Phases respectively) was supported by civil emergency services (CES) from Cumbria Fire & Rescue, Cumbria Constabulary and the North-West Ambulance Service, and local authority representatives. Days 2-5 (Phase 3, or the Recovery Phase) focussed on the MOD NEO Follow-on-Forces recovery operation as defined in Reference E.

8. SENATOR 18 was assessed by DefNucSyR and DNSR and was the first exercise to be jointly assessed by the two organisations following the declaration of MOC by DefNucSyR in May 18. This approach was in line with Safety Informed Nuclear Security (SINS) outlined in Ref A, and adopted collaboration as outlined in the MoU between the two organisations [Ref F]. The exercise was assessed against a set of exercise objectives that were agreed through the exercise planning process, evidence against which support the effective demonstration of both safety and security arrangements associated with a NEO response.

9. This report details DefNucSyR security assessment and observations against the agreed exercise security objectives detailed at paragraphs 10 and 11 below, and included assessment of the security aspects related to the following key response activities:

- a. The Incident Site response (Immediate Response Force (IRF))
- b. The GOLD activities during the Emergency Phase
- c. The JOC activities during the Emergency Phase
- d. BRONZE location activities during the Recovery Phase

### Exercise Aim & Security Objectives

10. The overall aim of the exercise was *'the assessment of the Nuclear Weapon Convoy Team and Larger Nuclear Emergency Organisation performance by DNSR & DefNucSyR at a level 3 (strategic, tactical & operational) exercise against the roles described in the Immediate Response Force (IRF) Manual Issue 10, Joint Service Publication 483 and Standard Operating Procedures and their interaction with the Civil Emergency Services (CES).'* [Annex A to DNSR/04/18/10/05 Dated September 18]

11. The exercise security objectives, together with success criteria, were set by DefNucSyR and agreed with DNSR and the Defence Nuclear Organisation (DNO) NEO Planning Team in advance of the exercise. The specific security objectives were as follows:

- a. Objective 5 – Support the on-scene response – Security Activities:
  - i. Success Criteria 5.1 – Undertake Security responsibilities for DNM/load carriers in cordon.
  - ii. Success Criteria 5.2 – Undertake Security responsibilities for remaining convoy assets.
  - iii. Success Criteria 5.3 – Establish and maintain a security cordon.
  - iv. Success Criteria 5.4 – Manage access into cordon.
  - v. Success Criteria 5.5 – Implement appropriate security measures to ensure classified information, material and equipment are safeguarded. JSP628.

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12. In addition to the above security objectives, Success Criteria "Implement appropriate security measures to ensure classified information, material and equipment are safeguarded. JSP628" was added to the following Objectives and assessed by DefNucSyR<sup>11</sup>:

- a. Objective 2 – Alerting and Notification of the CES
- b. Objective 7 – Integration of MOD NEO Follow on Forces (FoF)
- c. Objective 8 – Operation of MOD NEO Follow on Forces (FoF). Strategic
- d. Objective 10 – Integration of MOD NEO Follow on Forces (FoF). Operational
- e. Objective 11 – Integration of MOD NEO Follow on Forces (FoF). Support Base
- f. Objective 12 – Integration of MOD NEO Follow on Forces (FoF). Reach Back

**Exercise Scenario**

13. The scenario for the exercise was as follows:

- a. A Nuclear Weapon Convoy, travelling northbound, was involved in a significant road traffic accident just outside Carlisle on the M6 (between junctions 42 and 43), with one of the [REDACTED] impacted. For exercise purposes, the incident was played out at MOD Longtown.
- b. As a result, the package arrangement inside broke apart and the resultant impact causing the explosive element to be ignited, breaching the container and distributing [REDACTED] (Alpha emitter). The radioactive material burned in the ensuing fuel fire and projected into a plume.
- c. The wind direction caused the resultant plume to be blown over Carlisle.

**DefNucSyR Exercise Approach**

14. Working alongside DNSR Assessors, DefNucSyR personnel, on day 1, closely observed the actions of the MOD Co-ordinating Authority (MCA) Executive Team at GOLD, the Special Escort Group (SEG) Escort Commander (EC), the Joint Operations Centre (JOC) and the actions of the IRF at the incident location. DefNucSyR also took the opportunity to observe activities in the Defence Crisis Management Centre (DCMC) on day 1 of the exercise. DefNucSyR was in attendance in an observational capacity only; and observations collated from the DCMC will be used to help inform future DefNucSyR support to a NEO response.

15. On days 2-5, working alongside DNSR Assessors, DefNucSyR personnel closely observed the actions of all personnel at the BRONZE Site and those of the Base Support Team (BST).

16. A key lesson identified for the assessment of the exercise was that the assessment team would have greatly benefited from access to appropriate Command & Control (C2) communications to enable a better situational awareness of the incident and understanding of decisions being made at the incident location. Specifically, during SENATOR 18, the lack of an ability to monitor IRF Airwaves communications had a detrimental effect on DefNucSyR ability to assess the IRF. DefNucSyR will investigate the potential to purchase sufficient numbers of Airwaves handsets, for use in assessing and observing future exercises that involve the MDP.

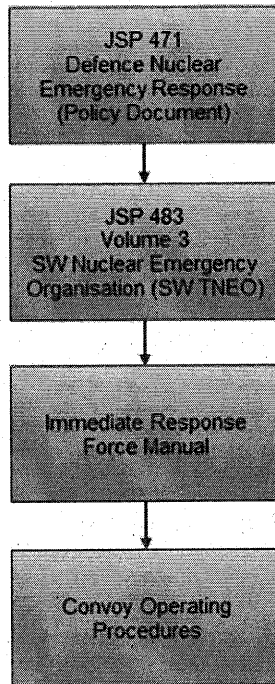
17. As part of the joint assessment approach, DefNucSyR has recorded its assessment and observations against all exercise objectives, and these have been used to inform this report, and provided to DNSR to inform the generation of its exercise assessment report. Similarly, observations on security aspects provided by the DNSR assessment team have been used to inform this report.

**MOD Transport NEO Policy Requirements for Security**

<sup>11</sup> It should be noted that for Objectives 8, 11 & 12, DefNucSyR carried out the full assessment of the Objective, not just the security Success Criteria.

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18. The diagram below depicts the document structure for MOD Transport NEO (TNEO) Policy, the requirements of which have been used to inform the DefNucSyR assessment of the security aspects of SENATOR 18:



19. The findings and observations detailed in the sections below are made in the context of the relevant security requirements contained within this documentation set, and DefNucSyR has assessed the extent to which these were successfully demonstrated throughout SENATOR 18. The relevant security requirements detailed in these documents have been collated at Annex A for reference.

**FINDINGS AND OBSERVATIONS**

**Exercise Planning and Design**

20. There was a comprehensive planning process for the exercise with Scoping, Initial, Mid and Final Planning Meetings all taking place in Cumbria and attended by DefNucSyR together with representatives from all the participating organisations. Any documentation that was associated with these meetings was issued in a timely manner together with documentation for the exercise itself. Each meeting had a specific brief on the security of the exercise, delivered by the exercise security lead, that ensured all participants were aware of the expectations from a security perspective. In addition, there were a number of specific planning meetings that took place at between DNSR, DefNucSyR and the DNO NEO Planning Team, which benefitted from lessons identified during the planning of Exercise ASTRAL BEND in June 2018 and supported the established of a set of agreed security objectives.

21. To enable efficient exercise play to take place at the DCMC, elements of the exercise were accelerated, including the issuing of offsite monitoring data. This acceleration was agreed at Exercise Planning Meetings by all parties, however it led to there being 2 exercise timelines in existence on Day 1. Both the DCMC and GOLD were approximately 4 hours ahead of the Operational Site, and undue pressures were being applied to the Incident Commander to provide information that had not yet been collated. This included the proposed movement plan for the unaffected [REDACTED] which was a high priority for the DCMC and GOLD but was not given the

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same priority at the Operational Site. The 2 timelines caused confusion at all locations with regard to the status and location of the unaffected [REDACTED]

22. It should be noted that exercise play at the Operational Site could not commence earlier than 1000hrs due to shift change timings of the local CES (0900hrs).

**Incident Site Response (Immediate Response Force, IRF)**

23. The IRF element of the exercise provided a successful routine, and timely, delivery of the appropriate security effect, noting that the exercise scenario did not incorporate the realisation of a security threat. The IRF quickly established [REDACTED] as per page 14, paragraph 1.9 of Reference D, whilst the remaining IRF personnel carried out their NEO duties. [REDACTED]

[REDACTED]

[REDACTED]

26. There was a need to enforce artificiality to the exercise through the use of a 200m safety cordon instead of the prescribed 600m cordon (which should be in place due to the high explosives). This was due to the area on MOD Longtown in which the exercise was hosted, and its proximity to the perimeter fence and the M6 motorway. Verbal assurances were provided, aided by the use of maps, of how and where a 600m cordon would have been secured (through the use of [REDACTED] Traffic Units blocking roads). However, DefNucSyR was not able to take full assurance of the security aspects as it was not possible for this to be physically demonstrated. It should be noted however, that the demonstration of security within the inner cordon, of the stricken [REDACTED] and associated debris field, did provide some degree of assurance that the appropriate security effect was delivered.

27. A comprehensive brief was given by the [REDACTED] (CC) to the incoming BRONZE Commander, including the current security plan and priorities.

28. There was no handover brief from the CC to the incoming [REDACTED] Commander due to the CC having to leave site. This was exercise artificiality driven by [REDACTED]

**GOLD activities during the Emergency Phase**

29. Security was listed in the MCA Priority List in GOLD and featured in MCA information requests from the outset. The status of the [REDACTED] was a subject of early discussion, and the need to identify [REDACTED] and establish a Temporary Security Plan for the unimpacted load carriers was raised early, with options being presented by the MCA for comment by HQ NEO due to political and presentational sensitivities.

30. The responsibilities of the MCA with respect to the development and sign off of [REDACTED] and Movement Orders was clear, and the MCA was aware of the requirements to maintain ongoing security during the recovery phase and for any interim movements.

31. The disapplication of Neither Confirm Nor Deny (NCND), in line with Paragraph 31 of Reference B, was appropriately communicated.

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32. There is no clearly defined process to determine the cause of an incident and specifically it is not clear who is responsible for making the assessment of whether an incident is initiated by an accident or malicious act, or how this would be communicated to the GOLD commander. The scenario for SENATOR 18 was well known ahead of the exercise, and therefore this aspect could not be tested as part of the exercise but should be considered for inclusion in future exercises. During the exercise a Cumbria Constabulary briefing stated that they it was not believed to be a terrorist incident, but it was not clear whether any underpinning information or process had been used to arrive at this conclusion, or whether these were standard 'lines to take'. DefNucSyR will follow-up this point to better understand any MOD roles or responsibilities that are required to support this.

33. Although focussed on Incident Site/BRONZE activities, there was positive evidence of consideration at GOLD of the establishment of a security cordon. The MCA requested confirmation of a being in place, the status of the [REDACTED] as well as the location of the unimpacted load carriers at several stages. Confirmation of handover to the BRONZE commander took place as scheduled, with the BRONZE commander made aware of MCA priorities at handover.

**JOC activities during the Emergency Phase**

34. As discussed above, the use of two timelines meant that GOLD was in play sooner than normal which caused confusion between Senior Operations Officer (SOO), MCA and the CC as to what decisions had been made regarding convoy dispositions and locations of [REDACTED]. Early interaction from BRONZE Commander also was not useful in gaining the clarity required.

35. There were good communications between convoy executives, [REDACTED] CC and other JOC personnel. Of note was CC asking for airwaves confirmation from JOC that they had received and understood the convoy accident message.

36. The SOO received a phone call from an unknown person in DCMC on a [REDACTED] phone, and was asked to clarify the load of the casualty vehicle, which when pressed, they provided, including the specifics of the load. [REDACTED]

[REDACTED] The process should then be added to the JOC and HQ NEO Standard Operation Procedures (SOPs) [Security Recommendation SENATOR18/001, SyRec/S18/001].

37. It was noted that the JOC SOPs reference a superseded edition of JSP440 Supplement 1, with edition 6 quoted (edition 8 is the extant version at time of writing). Both editions were held in hard copy within the JOC, and therefore presented a risk that the incorrect version would be followed. **It is recommended that the JOC SOPs are updated to reference the extant version of JSP440 Supplement 1. Any hard copy versions that are held that are no longer applicable should be removed from the JOC document storage [SyRec/S18/002].**

**BRONZE location activities during the Recovery Phase**

38. Throughout Day 1, DefNucSyR Assessors at the Operational Site were reviewing information security, particularly as elements of Reference E started arriving and handovers took place. This led to further planned reviews from Day 2 onwards.

39. On commencement of Day 2, the BRONZE Commander gave a team brief to all players, spelling out his priorities; this included strong emphasis on the importance of the security of both the incident scene and the BRONZE Site.

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40. During the recovery phase, entry into cordon was controlled by the [REDACTED] who maintained [REDACTED]. All personnel wishing to access the cordon had to report to the [REDACTED] Control Room in the first instance. There was clear signage placed at the cordon line detailing this requirement.

41. [REDACTED]

42. Upon carrying out a review of the AWE Operations Centre (AOC), staff demonstrated robust access control, procedural mitigations and document handling measures to ensure the protection of [REDACTED] in the field.

43. There was some uncertainty about the accreditation status of the Off-Site Response Group Local Area Network (LAN) used within the AOC, and this will be inspected by AWE as part of a post-exercise review.

44. The accreditations for equipment in the Immediate Response Vehicle (IRV) are valid. These systems are self-accredited by AWE and given the novel nature of the overall system as a Mode of transport, these accreditations would benefit from independent assurance by the sponsoring TLB (Defence Nuclear) or Defence Assurance & Information Security (DAIS). The IRV also contains a [REDACTED] used routinely for [REDACTED]<sup>12</sup>—and exceptionally for [REDACTED]. However, [REDACTED] will not be approved for use [REDACTED] beyond 31 Dec 18 which will potentially [REDACTED]

[REDACTED] Furthermore, it is recommended that MOD and AWE should review their need for [REDACTED] and ensure that a solution is identified to replace [REDACTED] [SyRec/S18/004].

45. During the assessment of the Base Support Team (BST) concerns were raised by the DefNucSyR that an unaccredited SYSIS system being used by the Forward Admin Cell (FAC) to create bespoke photo passes, has significant information assurance and usability issues. **The SISYS system should be registered with ISS DAIS on [REDACTED] in order to undergo the accreditation process, and a review conducted to confirm if it remains fit-for-purpose [Security Corrective Action Requirement 001, SyCAR/S18/001].**

[REDACTED]

[REDACTED]

<sup>12</sup> In accordance with ACO130, [REDACTED]

[REDACTED]

49. It was disappointing that not all organisations that support Reference E were able to remain for the entire duration of the exercise, leading to some exercise artificialities. Of note, Explosive Ordnance Disposal (EOD) were given permission to depart at the end of day 2, so the identification and packaging of the high explosives was not witnessed. Both the MMF and the [REDACTED] were given permission to depart before the end of day 3 due to other commitments. When the [REDACTED] left, there was no prior notification given to either DNSR nor DefNucSyR Lead Assessors on actual timings for departure. Although their departure by the end of day 3 had already been agreed, it wasn't until Assessors had entered the cordon to review the positioning of [REDACTED] that it was noted that they had departed.

50. To enable the assessment of security of in-cordon moves of both fissile and classified debris, a small number of [REDACTED] personnel remained to carry out that role on day 4. However, for the duration of day 4, there was only a notional NGF presence for in-cordon security which led to exercise artificiality and the inability for the DefNucSyR to observe how the static and mobile guards interacted. Despite this, the in-cordon moves were demonstrated to the satisfaction of DefNucSyR Assessors, with good communications between all parties ([REDACTED] AWE and [REDACTED] Control Room) noted.

51. Once identified, classified debris at the incident location was covered with tarpaulin. [REDACTED] provided [REDACTED] within the debris field, and of the recovered classified debris whilst it awaited packaging. This debris would subsequently have been packaged for transportation, however this was not demonstrated due to exercise time constraints. As stated above, DefNucSyR observed how the fissile material was securely moved within the cordon, and its eventual packaging, to gain confidence that the classified debris would have been handled in the same way.

52. Despite the role of the BRONZE Site being a 24-hour operation, this was not demonstrated, with play ending at approximately 1800 each day, and recommencing 0800-0900 each morning. This artificiality required the DISTAFF to inject that some processes were completed overnight for exercise purposes. Of note, this included the identification, recovery, packaging and off-site transportation of the High Explosive (HE) debris in cordon between days 2 and 3, with the operation to move the unaffected [REDACTED] taking place at the same time. Although this helped to accelerate the exercise to ensure all pre-agreed objectives could be assessed, there was concern from both DNSR and DefNucSyR that this was not a realistic demonstration of the capability. This concern was compounded by the fact that there is no evidence from previous exercises that overnight operations at the BRONZE site having been exercised and assessed.

53. There was also evidence of DISTAFF injects and conversations with players taking place that caused additional exercise artificialities. Of note was a member of DISTAFF having a discussion with one of the [REDACTED] officers in-cordon regarding his positioning, which was in close proximity to fissile material. This led to that officer notifying the [REDACTED] Commander upon completion of his rotation, and the guarding plan being changed to compensate. The DISTAFF intention was to establish whether the [REDACTED] in-cordon had been notified by AWE of the locations of hazardous material, but in doing so, affected play.

#### **Exercise Security Arrangements**

54. Security of the exercise site was considered and sweeps were conducted at the GOLD location prior to STARTEX and the introduction of MOD information and assets. Security briefing was provided to all DISTAFF ahead of the start of play. During play at GOLD, there was consideration of the security requirements for information and discussions. Secure communications were in place and maintained in separate locations from main play. Access to sensitive areas was monitored and simple, effective measures were put in place to minimise the probability of 'need to know' information being compromised. Discussions within exercise play were appropriate to the exercise scenario, but consideration of the depth of play required by DISTAFF should be assessed to avoid unintentional failing of the principle of need to know in an artificial environment.

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55. At the BRONZE site during the recovery phase, clear security briefs were provided to highlight the importance of applying the 'need to know' principle, and the requirements for clearances to access certain MAUs was made clear and enforced. [REDACTED] for exercise play were in place and effective. A good example is of the exercise security arrangements in practice was when the Exercise Security Officer fielded a query regarding the protection of 42 Geo's cryptographic material out-of-hours, which had apparently not been covered in the security planning process. The Exercise Security Officer's instruction was to comply with the respective crypto custodian's handling instructions, and re-assurance was given that [REDACTED]

**CONCLUSIONS**

56. Overall, DefNucSyR assesses that SENATOR 18 gave an **ADEQUATE** demonstration of the security arrangements associated with an MOD NEO response to a road convoy incident and the subsequent recovery operations.

57. The exercise was driven by a well-developed, credible scenario, noting that this was well known to be safety focussed in advance, and did not seek to test the limits of a security response which limits the level of assurance that DefNucSyR can draw from the exercise. Nonetheless the delivery of the security effect was as expected, and DefNucSyR will engage with DNO NEO to discuss the inclusion of elements of security threat in future exercise scenarios that would further test these elements.

58. It was positive that the security of the 'exercise bubble' was effective at all locations, and that within the exercise play security was given suitable prioritisation in the response activities. DefNucSyR observed examples of good security culture at all locations, together with the delivery of the required security effect by the IRF, RAF Regiment and [REDACTED] the Operational/BRONZE Site.



**ANNEX A - SECURITY REQUIREMENTS IN TRANSPORT NEO POLICY**

1. This Annex provides a copy and paste summary of the security requirements within extant Transport NEO Policy.

**JSP 471 (v2.0, Oct 18)**

2. Page 6, para's 16-19:

**Security**

16. Security aspects of the Defence Nuclear Enterprise are exempt from legislation and therefore require 'Departmental arrangements'. These arrangements are under the purview of the Defence Nuclear Security Regulator (DefNucSyR). DefNucSyR regulatory requirements, including specific aspects of operational nuclear emergency response plans and associated guidance, are set out in JSP 628 and are specifically not addressed within this JSP.

17. JSP 440, Supplement 1, prescribes the minimum physical security requirements for the protection of DNM or assets. The aim of the physical security measures is to exercise positive control over unauthorised access to nuclear assets or materials and to preclude damage, sabotage, espionage, theft, diversion or unauthorised detonation.

18. Duty Holders and Responsible Persons are to ensure that plans for responding to incidents or emergencies involving DNM or assets include, as appropriate, effective arrangements to ensure that positive control can continue to be exercised over the assets or materials involved or affected or is regained in the shortest time possible. These plans should satisfy the expectations of security regulation as articulated in JSP 628. Where the incident or emergency occurs outside MOD property, security and/or control arrangements are to be integrated with those of the civilian police.

19. Duty Holder response plans should take into account the Planning Assumptions for Nuclear Security (PANS), and security response plans/strategies will be approved by DefNucSyR.

3. Page 11, para 21:

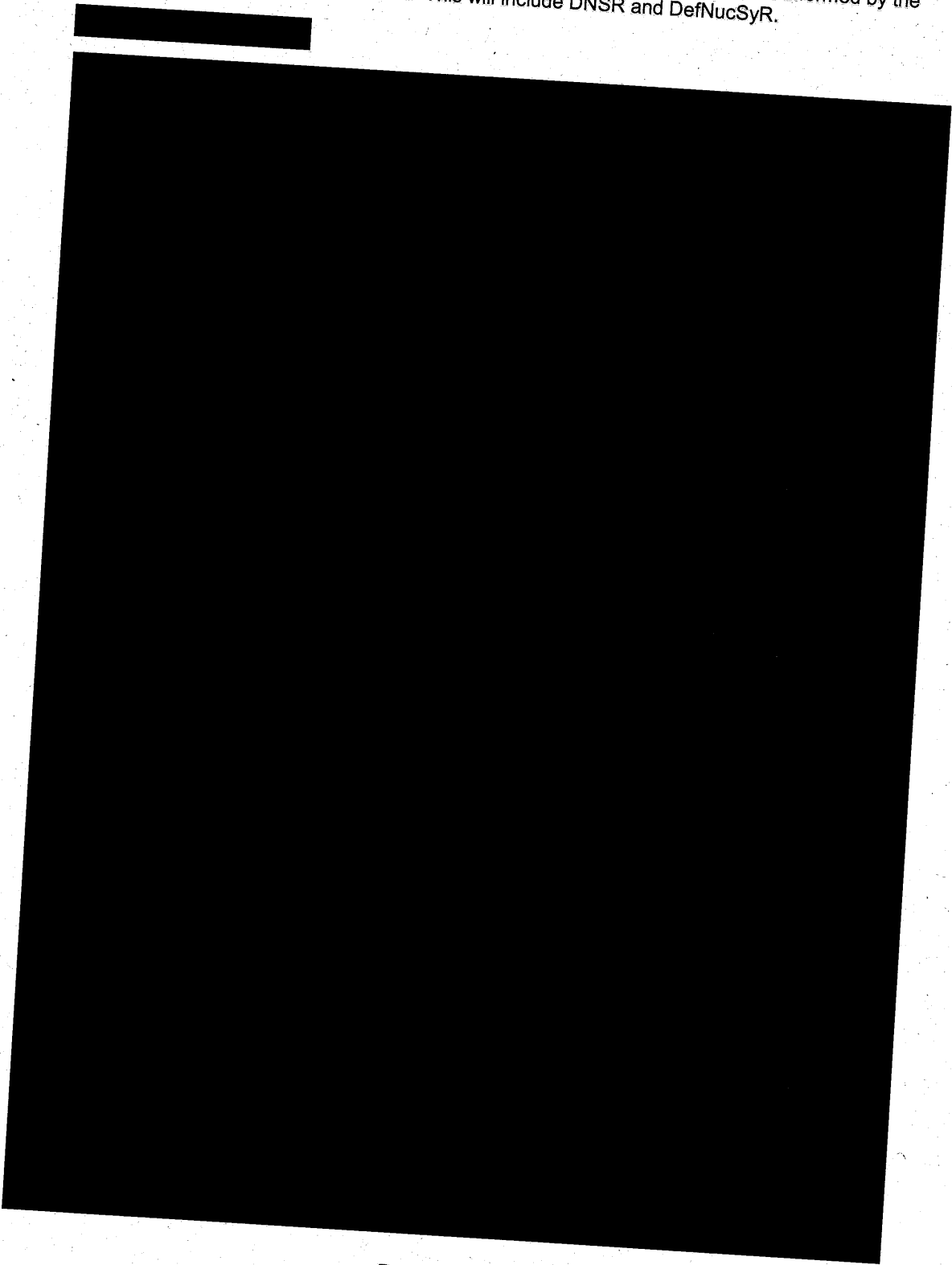
21. DefNucSyR role: DefNucSyR is to attend the Technical Guidance Group (TGG) in order to make an independent nuclear security regulatory assessment of the future course of the emergency, including advising on the suitability of any temporary security plans, processes or procedures that may be necessary while the situation is recovered. Where appropriate, these assessments will be forwarded to other DefNucSyR inspectors for input on-site and at both the local and national strategic level of the response as required. Any differences of opinion are to be resolved at this stage to avoid separate Responsible Person/Duty Holder and regulator assessments from going forward.

4. Page 23, para 4:

4. Responsibility for the overall effectiveness of MOD's media and communications response lies with the Directorate of Defence Communications (DDC). HQ DNEO is responsible for ensuring that information for the public, parliament and the media is accurate, consistent, informative and issued promptly. The need for public safety and reassurance takes precedence over security requirements, although any relaxation of security requirements should only be considered where there is a demonstrable conflict

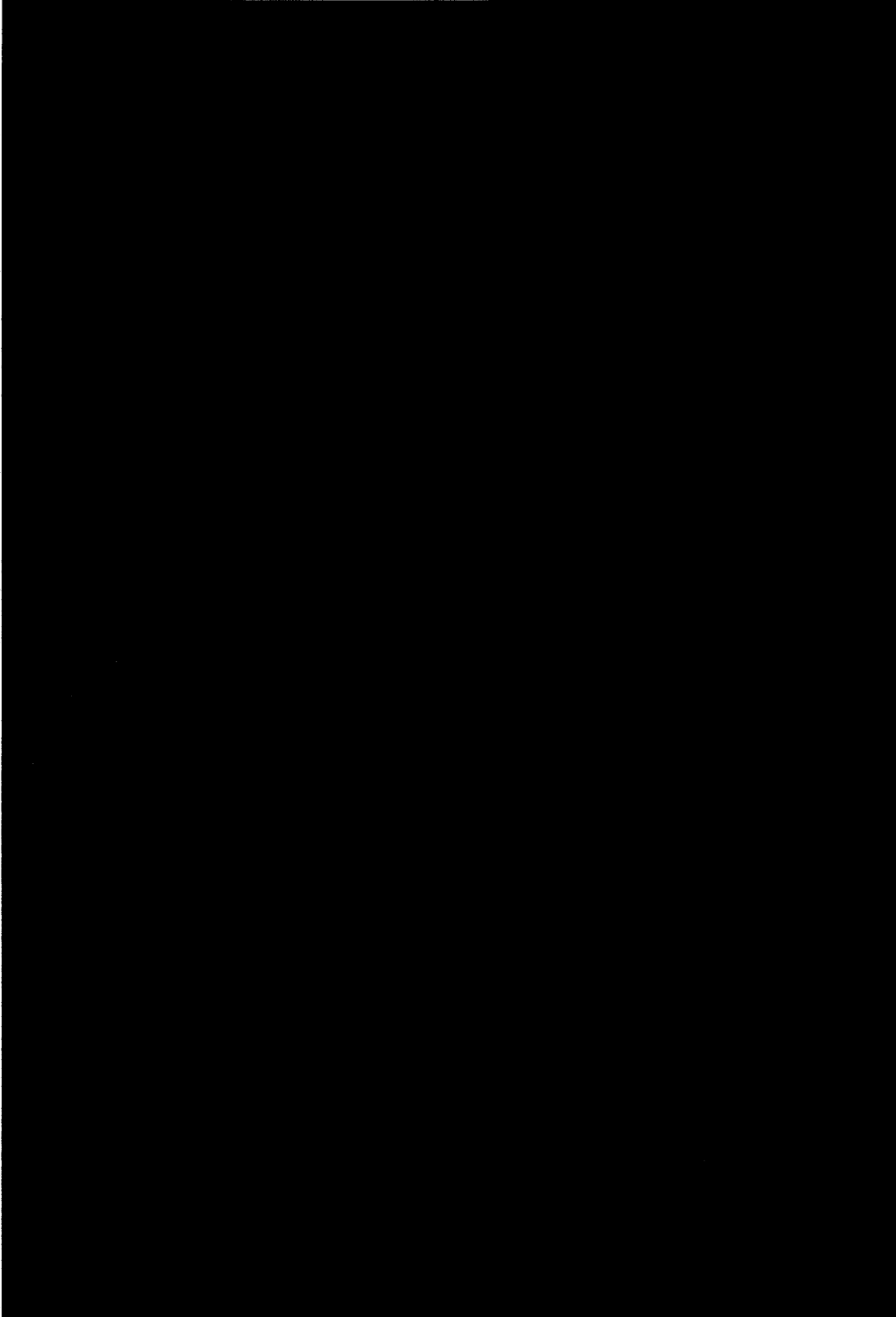
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between safety and security requirements, and this decision should be informed by the appropriate MOD authorities. This will include DNSR and DefNucSyR.



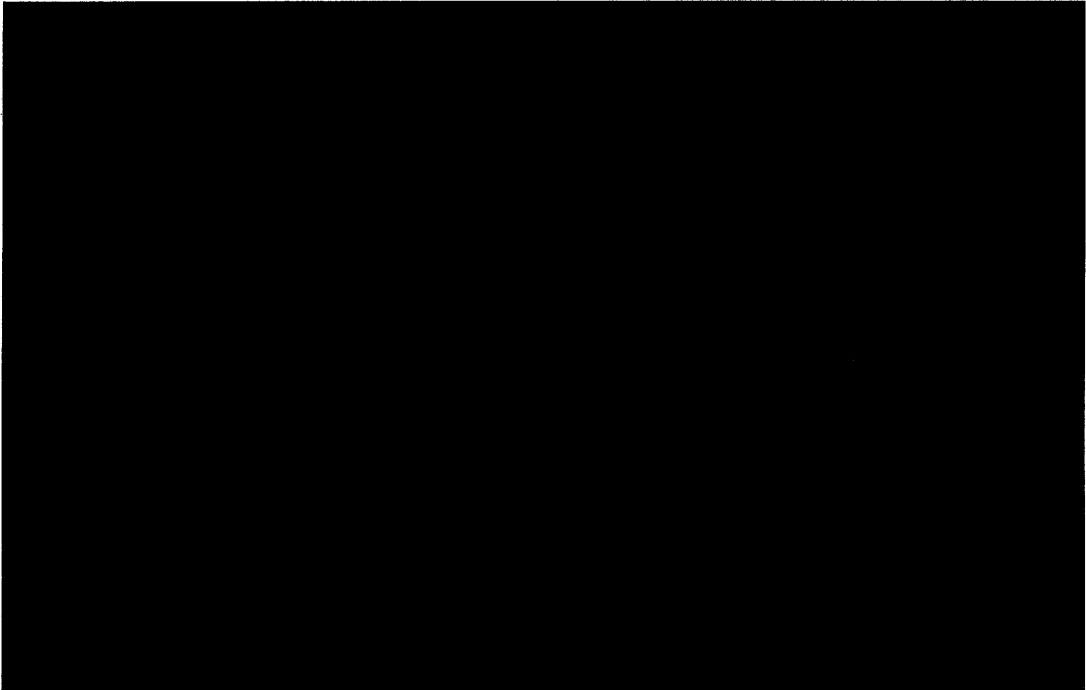
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**Appendix C - SENATOR 2018 - Enforcement Actions**

**Outstanding Actions**

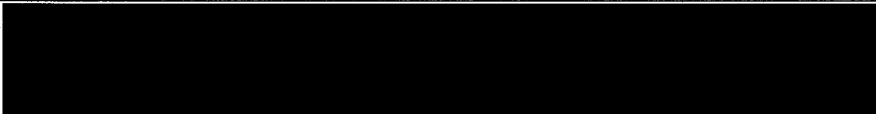


REFERENCE	INSPECTION / EXERCISE	Finding/Recommendation	Open/Closed
TRF 0185	Astral Climb SENATOR 11	The hazard assessment for the transport operation, and thereby the justification for the extant public protection advice, has not been reviewed.	Open, Hazard Report on-going.
TRR 0250	Astral Climb 2017	Amend IRFM BST duties to remove Serial No 8 and add the duty to a more appropriate officer. The up issue of the IRFM should include sufficient time for Stakeholder involvement, feedback from Exercises and User Comments.	Open, awaiting up-issue of IRFM.
TRR 0252	Astral Climb 2017	Press Statements available in the various documentation should be consistent.	Closed, agreed at FAP meeting on 20/11/2018.
TRR 0253	Astral Climb 2017	That continued emphasis is provided to IRF on carrying communications equipment within 10 meters of the debris field. TRF0213 on briefing the arriving CES on in-cordon hazards and radio communication within debris field remains open.	Closed see paragraph 20.
TRR 0254	Astral Climb 2017	The MSEL should be examined so its purpose understood by Di-staff & Assessors and the timings reflect lessons learnt.	Open
TRR 0255	Astral Climb 2017	Review the [REDACTED] procedures against good practice in searching the incident area, identifying casualties and allocating resources to triage activities.	Open
TRR 0256	Astral Climb 2017	Di-staff arrangements should be reviewed for future transport exercises to ensure exercise play and internal assessment is optimised.	Closed see paragraph 48.
TRR 0257	Astral Climb 2017	Establishment that there is no malicious intent to the incident needs to be clearly identified and the process by which it is established demonstrated, so when the IC conveys this message to the IRF and JOC it effectively approves the use of multiple assets in life saving efforts.	Open – Raised to CAR
TRR 0257	Astral Climb 2017	Review of the Convoy Standard Operating Procedures and the actions described within in relation to transferring information out of cordon.	Closed see paragraph 22.
TRR 0259	Astral Climb 2017	The internal assessment should cover all of the objectives in the Exercise, the training assessments, the validity of the supplied documentation and sufficient time should be allowed for this to be completed.	Closed, via the hot wash at the incident site.
TRO 0108	OSMOSIS 2011	There is an inconsistency in the security classification of RTP / SERPs and Engineering Order Number 1.	Open
TRO 0113	SENATOR 11	Provision of cervical collars and training in their use for cervical immobilisation would enhance casualty care in these types of scenarios.	OBE & no longer issued.
TRO 0116	SENATOR 11	Lines of Defence concepts should be considered in developing weapon recovery options.	OBE & out of scope.
TRO 0117	SENATOR 11	The lessons learned from the packaging discussions should be captured and incorporated into documented arrangements.	Closed – New CAR raised on DNO and DNSR
TRO 0158	Diamond Dragon 15	The plan is not explicit on the need for HQ DNEO clearance of media statements after the initial response.	Open
TRO 0159	Diamond Dragon 15	SWPT should remind PAG members of their obligation to support the PAG Chairman in this key task.	Closed see paragraph 124.

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TRO 0160	Diamond Dragon 15	Production of radiological monitoring plots by 42-Geo for the pseudo-STAC was slow and had errors for most of day 2. The artificiality of the pseudo-STAC on the BRONZE site contributed to this and by-passed the usual RMG processes for this task.	OBE – adoption of Virtual STAC
TRO 0161	Diamond Dragon 15	The HCMF HCP MAU was unmanned during day 2. Some elements of the HCMF HCP cross cordon facilities should have been available, supported as necessary by di-staff.	Closed
TRO 0167	Astral Climb 2015	The arrangements need to recognise ambulance and F&RS practices regarding photographing the scene and ensure that appropriate controls are in place.	Open
TRO 0170	Astral Climb 2016	Radiation monitoring arrangements for clearance monitoring of staff required to exit contaminated vehicles and the evacuation zone at a very early stage require review.	Open
TRO 0173	Astral Climb 2016	Consideration should be given to the suitability of arrangements inside the [REDACTED] for monitoring all types of persons exiting the evacuation zone.	Closed
TRO 0198	Astral Climb 2017	Clarification on the equipment the YM should carry and if it prevents close approach which may be needed to confirm a limited/localised release of radioactive material.	Closed
TRO 0199	Astral Climb 2017	Sharing of the MOD monitoring personnel to assist CES should be appropriate and not degrade the MOD capability.	Closed
TRO 0200	Astral Climb 2017	Review the appropriateness of Di-staff training/expertise and where they are located within the Astral Climb Exercise.	Open

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**New Actions**

Reference	Inspection / Exercise	Finding	Serial
TRR 0281	SENATOR 2018	For future Level 3 demonstration ensure that an objective is included to test the communications between GOLD/Strategic and London.	1
TRR 0282	SENATOR 2018	Identified planning documentation should be delivered to Di-Staff and assessors in a timely manner, only in exceptional circumstances should the documents be issued after the Final Planning meeting.	1
TRIN 0001	SENATOR 2018	 DNSR expects a Forward Action Plan to be agreed as soon as reasonably practicable detailing how the IN will be closed out no later than 8th March 2019.	1
TRO 0205	SENATOR 2018	If dual timelines are to be utilised greater care should be taken in the planning phase to ensure the appropriate information is available using an enhances SIMCELL	1
TRR 0283	SENATOR 2018	If 24-hour play is not undertaken ensure artificial overnight play is pre planned and agreed during the planning phase	1
TRC 0284	SENATOR 2018	The DNSR pager was not activated during the exercise. A review of how the JOC informs DNSR should be undertaken and demonstrated.	2
TRR 0285	SENATOR 2018	Ensure copies of all relevant documentation are formally issued to all stakeholders in a timely manner	2
TRR 0286	SENATOR 2018	Consider the need for all of the  within active convoys to contain medical bags to ensure redundancy of medical supplies	4
TRR 0287	SENATOR 2018	Undertake review of  Medic training requirements to ensure appropriate level of training is undertaken	4
TRO 0206	SENATOR 2018	Distaff should ensure that players do not pre-empt activities that will need to be undertaken once an incident is declared	4
TRO 0207	SENATOR 2018	Procedures and training should be reviewed to ensure rotation of personnel can be managed appropriate to the conditions	4
TRR 0288	SENATOR 2018	Enough masks should be carried by the convoy to allow all casualties to be provided with their own for all foreseeable emergency scenarios.	4
TRC 0289	SENATOR 2018	The IRF working inside the cordon were not wearing PPE to a consistent standard. All personnel within cordon should be wearing PPE appropriate to the hazards. This needs to be adhered to and enforced.	4
TRR 0290	SENATOR 2018	Initial Press Statements that are issued by the CES should not require MCA approval as they are CES statements not MOD statements. However, any amendments should be reviewed for accuracy by appropriate MOD NEO Staff	4
TRR 0291	SENATOR 2018	Commitments made by the MCA at SCG meetings need to be recorded and acted upon.	8
TRO 0208	SENATOR 2018	Clear communication is required to ensure all personnel are aware that the recovery phase has begun and subsequently what procedures are then	10

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		invoked in order to avoid unnecessary delay to cordon entry in the emergency phase.	
TRO 0209	SENATOR 2018	Utilisation of the Annexes is SWS000406 Card 15 should be used to ensure that no updates/information is missed during BRONZE Cdr Briefs	10
TRC 0292	SENATOR 2018	There needs to be clear agreements between DNO and the Competent Authority regarding the documentation requirements to move an unaffected convoy post an NTE	10
TRC 0293	SENATOR 2018	Identification of key personnel i.e. Consigner/Consignee who are responsible for the subsequent transport operations post an NTE are required. Once agreed suitable training should be undertaken to ensure they are SQEP	10
TRO 0210	SENATOR 2018	Issue of a BRONZE site map at an early stage would have been useful to the operational cells	10
TRR 0294	SENATOR 2018	There is a need to ensure H&S plans and signs are in place and easily visible in a timely manner	10
TRO 0211	SENATOR 2018	For future demonstrations the DNSR Assessment team should be provided with a NERIMS terminal	10
TRR 0295	SENATOR 2018	Arrangements for the configuration control and acceptance of changes made to NERIMS in the future should be reviewed and applied.	10
TRC 0296	SENATOR 2018	ESHG manning to be confirmed as if no medical advisor is present responsibilities within BRONZE Command guide cannot be delivered	10
TRO 0212	SENATOR 2018	There is a need to ensure that Exercise Safety Documentation has been understood and being followed to avoid unnecessary NODUFF situations	10
TRC 0297	SENATOR 2018	ESHG personnel to ensure all personnel entering the cordon are briefed on the hazards. These briefs should be updated when additional hazards are identified	10
TRO 0213	SENATOR 2018	Designated manning for the MAASL should be sufficient to meet to the challenge posed by actual events as well as exercises	10
TRR 0298	SENATOR 2018	The arrangements for the default air sample strategy to be followed, sample collection, and analysis would benefit from review.	10
TRO 0214	SENATOR 2018	One of the L10B air samplers used on the BRONZE site to establish radiological safety was not in calibration date	10
TRR 0299	SENATOR 2018	Arrangements are required for the management of returning radiation monitoring teams, their equipment and vehicles, who have been operating in the downwind hazard area beyond the 600m cordon	10
TRR 0300	SENATOR 2018	Default standard monitoring protocols should be consistent across supporting plans and policy and implemented unless there is good reason not to that has been agreed at the strategic level.	10
TRR 0301	SENATOR 2018	The review of MMF training packages to support this operation should be considered to ensure appropriateness, particularly in the light of changing responsibilities of future support in the area.	10
TRO 0215	SENATOR 2018	The use of MAU's was not optimised to enable radiation monitoring requirements to be coordinated from one management area.	10
TRO 0216	SENATOR 2018	HCP procedures should be carefully followed unless specialist advice is sought. Ad hoc changes are likely to compromise radiological safety.	10
TRO 0217	SENATOR 2018	Safety issues should be resolved before an RTP is brought before the PAG for approval.	10



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TRR 0302	SENATOR 2018	Assessed Exercises should not be used as Training events for players as the purpose is to demonstrate a response capability. Modular Training sessions should be undertaken for various roles to ensure all rostered NEO personnel are SQEP	10
TRO 0218	SENATOR 2018	Consider merging processes into single document to ensure materials can easily be tracked through identification into container loading	10
TRC 0303	SENATOR 2018	NEO documentation should be updated to reflect interactions with the Competent Authority in gaining agreement on transport and packaging	10
TRC 0304	SENATOR 2018	DNSR documentation should be updated to reflect actions to be taken and information required to allow approval of packaging and transport post an NTE	10
TRO 0219	SENATOR 2018	There is a need to ensure that only essential personnel who are demonstrating the capabilities are involved in activities.	10
SyCAR/S18/001	SENATOR 2018	The SISYS system should be registered with ISS DAIS on [REDACTED] in order to undergo the accreditation process, and a review conducted to confirm if it remains fit-for-purpose.	5
SyCAR/S18/002	SENATOR 2018	[REDACTED]	11
SyRec/S18/001	SENATOR 2018	[REDACTED] The process should then be added to the JOC and HQ NEO SOPs.	2
SyRec/S18/002	SENATOR 2018	The JOC SOPs are updated to reference the extant version of JSP440 Supplement 1. Any hard copy versions that are held that are no longer applicable should be removed from the JOC document storage	2
SyRec/S18/003	SENATOR 2018	That AWE conducts an information assurance review of their equipment to ensure the cryptography is in-date, and the accreditations are valid and compliant with extant DAIS policy and triage rules	10
SyRec/S18/004	SENATOR 2018	MOD and AWE should review their need for [REDACTED] and ensure that a solution is identified to [REDACTED]	10
SyRec/S18/005	SENATOR 2018	DNO NEO are to confirm that the [REDACTED] are able to continue to support Op BANKNOTE. If not, then a suitable alternative, with similar powers of arrest, is to be identified and agreement sought for support. OP BANKNOTE is to also be updated to reflect any changes.	10

