



**Defence
Safety
Authority**

Defence Ranges Safety Committee
Secretary
Defence Safety Authority

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Your Reference:

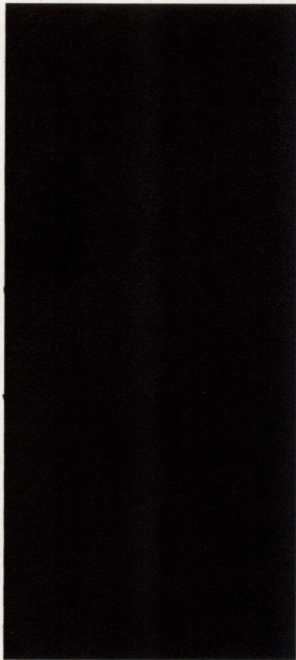
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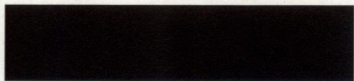
**MINUTES OF THE 2nd MEETING OF THE DEFENCE RANGES SAFETY COMMITTEE
HELD AT WATERLOO LINES, WARMINSTER ON THU 21 APR 16**

Present:



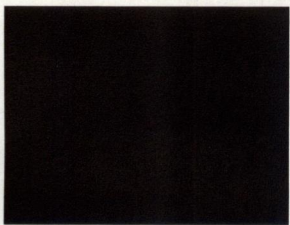
DSA DOSR TL Chairman
 CESO (A) SO1 Trg Safety
 DIO SD Trg SO1 Trg Safety
 DSA DOSR Ch RSIT
 SO2 Trg Safety CapCbt-DCC
 DES Wpns DOSG WS1r
 DIO SD Trg HQ Trg Safety Air
 RNRSO
 Air 38Gp – Expl Safety SO3
 MDP
 JHC CI Wpns SO3 Trg Safety
 DIO SD Trg HQ TAS
 DES Wpns DOSR WS IE MLST
 RAF ESIT
 Dstl LSA
 DSA DOSR PRG Asst TL Chairman DRSCWG
 DSA DOSR PRG 1a Sec

In attendance:



SO2 Ops Trg UK Regional Comd HQ
 DSA DOSR Ass ATL

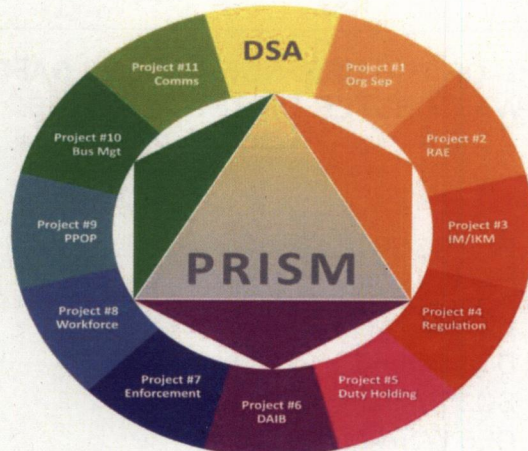
Apologies for Absence:



DAATM
 SO1 Trg Safety CapCbt DCC
 DIO SD Trg -TAS Tech Offr
 CFI MDP
 DAIB SO3 Trg Safety
 DOSG ST5

Item 1. Introduction by Chairman

1. The Chairman welcomed attendees to the 2nd Meeting and accepted apologies for absence. He explained that this was the first meeting that combined both DRSC and the Military Laser Safety Committee (MLSC) and welcomed new members to the meeting.
2. He informed the committee that DSA are currently conducting a full review of safety across the whole of the MoD and that this would be presented to the Defence Board (DB) at the end of the month. This is achieved through Project Programme for the Regulation and Investigation of Safety by the MoD (PRISM) which is a transformation programme that will deliver the Director General's (DG) vision for the future operation of safety in Defence, and future DSA. Founded from the recommendations made by the Defence Safety Regulatory Review, PRISM is an ambitious programme of 11 projects that will impact our organisation, stakeholders and the way we do business.



PRISM Projects

Item 2. Minutes of the 17th MLSRP Meeting

3. The minutes of the 17th MLSRP Meeting were approved as a true and accurate record of that meeting.
4. Matters arising from the previous minutes were identified:
 - a. **PRA Coding.** Approach ██████████ (ST5) regarding a review of the PRA PA coding for MoD internal verification (i.e. to check that coding is maintainable using MOD resources). **On-going.**
 - b. **Laser Eye Protection.** Create an adjusted laser eye protection report using ██████████ report as reference to submit to the MLSRP members for endorsement. ██████████ stated that he had received a copy of the report and that it was now the responsibility of the Project Team (PT).
 - (1) **Decision.** Chairman tasked ██████████ to draft a letter to the PT to inform them of the requirement for the goggles.
 - c. **LSA Course.** A bigger pool of questions for the test is needed and statistics on performance of the test results should be kept. ██████████ stated that ██████████ agreed that a greater pool of questions is required and that this will be discussed at the next LSO course in Oct 16. ██████████ expressed his concern that the current course conducted at DAUK Shrivenham and that courses conducted there were more focused on education rather training and that a future LSO course should be fully DSAT compliant and require a Training Needs Analysis (TNA) to be conducted. **On-going.**

IE MLST
MLSRP/1110/09

IE MLST
Action 1/16

IE MLST
MLSRP/1111/2

d. **Ocular Damage Presentation.** ██████████ to send out a copy of the Ocular Damage presentation with the minutes. **Closed.**

e. **STANAG 3606.** ██████████ to send out a copy of the current draft of STANAG 3606 to panel members. **Closed.**

Item 3. Report by Secretary MSRP

5. Secretary MLSRP stated that the 17th Meeting was held on 14 Sep 15, a summary is as follows:

a. **Military Laser Safety Committee Restructure.** The DSA has taken ownership of MoD laser safety policy, taking the lead on JSP 390 and the MLSC. A few changes are in affect already including the MLSC's name, it is now called the Defence Laser Safety Committee (DLSC). The DLSC will be chaired by the Defence Ordnance Safety Regulator (DOSR) Team Leader (██████████) with the Secretary being the policy regulator ██████████. The terms of reference and stakeholders of the DLSC have not been finalised, but are expected to be completed by the end of the year. It is expected that a stakeholder review will be done shortly which will include all MoD teams as well as possible input from industry.

Sec Note: A decision taken after this meeting was held to merge both DLSC and DRSC and that Laser business would be discussed as Part 1 of all future DRSC meeting and that MLSRP would merge with DRSCWG to reduce the number of meetings stakeholders would need to attend.

b. **Class 3R Lasers.** There was a short discussion about Class 3R lasers and whether these lasers were a real hazard. ██████████ pointed out that 3R visible lasers could be considered safe as there had been no reported eye damage while using these systems. However, Germany would disagree as the class 3R lasers exceed the MPE values and should therefore be considered unsafe. Any changes to the standards would take some time to approve so the panel should not expect any changes soon.

c. **Standards.** ██████████ and ██████████ provided an update on the laser safety standards which included the possible creation of a new standard on consumer laser products safety. There is a potential to split 60825-1 into two separate parts. Part one would consider consumer laser products. The issue about class 3R lasers was readdressed as was the fact that Germany would be against exceeding the exposure limits.

d. The group discussed the Interpretation Sheet (ISH) for the IEC 60825-1 that was created to help understand some of the more complex aspects of the standard. However, the general view was that this ISH was ambiguous and confusing comments on the ISH from the panel were welcomed. The panel asked to see a copy of the ISH.

e. **PRA Update.** ██████████ gave a short brief on the work he had done on the MATILDA programme and the two meetings that had taken place since the panel had last met. He first discussed the International Laser Safety Conference (ILSC) that took place in Albuquerque in March 2015. There were a number of interesting presentations including high powered laser systems and how to operate them safely. He also informed the panel of the two presentations that he was involved with at the International Laser Safety Conference, both of which generated interest. These were:

- (1) PRA Analysis of Attack Track Suitability (MOU team).

(2) A Probabilistic Risk Assessment Process for High Power Laser Operators in Outdoor Ranges (██████████).

e. During the ILSC work progressed on the MATILDA programme, with the focus now on changing the co-ordinate system to the display plane in order to deal with hilly terrain. The report on this subject has been produced and is being implemented by the US. There are still coding issues which are taking time to correct. A key problem that took time to correct was the cross product which was being calculated in the wrong order giving incorrect results. Further work was done at the meeting that took place in Edinburgh in July including discussion on the next Project Agreement with the US. It is expected to run for another 5 years and cover a PRA ground to ground model and a new ocular damage model using the MPE values.

f. **Training.** The chairman had already discussed training during the review of the actions. Here are the main points covered:

(1) Training is still being run through DAUK at Shrivenham by ██████████

(2) Course is under review and has been modified to reflect the changes in policy.

(3) Work is underway by the DSA DOSR to provide laser safety training at the service level through the Safety Training Squadron.

(4) The MLST is expected to liaise with the DOSR to help complete this task.

(5) Next course is 22 – 23 Oct 16.

g. **High Energy Lasers.** The chairman informed the panel that he had been approached by industry to discuss Laser Directed Energy Weapons (LDEW) and how best to operate them safely both in training and operation. Work has already been done to try and identify all the LDEW hazards and possible mitigation in order to minimise the risk. The work that has been done has highlighted issues such as reflection hazards, beam propagation and possible satellite damage.

h. Work is required to be done both on the damage model and the PRA programme in order to be prepared for this new technology. The US is using this technology already and so the panel is interested to know how they deal with the safety hazard. The Chairman suggested that he could speak to the US Navy laser safety experts and ask about their approval process.

i. **Electromagnetic Environmental Effects (E3) RADHAZ Working Group.** The chairman informed the panel that he had been asked to attend a NATO Electromagnetic Environmental Effects (E3) RADHAZ Working group in Brussels. He presented on the work the NATO laser Safety panel has done including the development of STANAG 3606. The group were interested on the work done addressing operational safety and directed energy systems, both of which are still in early draft stages. The panel has asked for LSP to act as a liaison between the NATO LSP and the E3 RADHAZ working group.

j. **EOTS Designator Laser.** JSF has been given approval to use the EOTS designator laser in the US under very tight controls. (No optics allowed within a 33 km of the aircraft and no observers within 9 km). If these restrictions stand then training in the UK will be almost impossible. The JSF PT is in discussion with the US to understand these restrictions and has asked for them to be reviewed.

j. **MLSRP Risk Register.** [REDACTED] informed the committee with liaison with Sec DSRC The Laser Risk ID 11945 Lack of Laser Eye Protection had been now been transferred to the DRSC Risk Register. A copy of the updated Risk Register is at Enclosure 1.

k. **JSP 390.** Secretary DRSC stated that alongside JSP 403 the DSA proposed initiative to change the format of JSP's to Defence Safety Regulatory Publications (DSRPs) supported by Regulatory Articles (RAs) and Regulatory Guidance (RG), all work on redrafting current JSPs will cease and in the interim either Laser Safety Notices (LSN) or Laser Safety Policy Letters (LSPL) will be issued.

l. **Laser Certification.** Sec MLSRP stated that the following Laser Clearance Certificates had been issued:

(1) 2015 – Total 352, New 76, Renewals 276.

(2) 2016 – Total 55, New 11, Renewals 44.

m. **Accidents / Incidents.** Sec MLSRP informed the committee that the following number of accidents / incidents had been reported:

(1) 2015 Total 66.

(2) 2016 Total 10.

Item 4. AOB

6. [REDACTED] informed the committee that on Fri 18 Mar 16 during a high powered laser trial at Building 34, Battery Hill Laboratories (BHL) a small fire occurred in the ISO container holding the trial target, which was illuminated by the laser energy at the time. The trial was stopped and the fire quickly extinguished. An initial investigation was carried out by the trial team was undertaken that included some additional control measures that will be implemented in future trials of this nature.

Item 5. Minutes from 1st DRSC Minutes

7. The minutes of the 1st DRSC Meeting were approved as a true and accurate record of that meeting.

8. Matters arising from the previous minutes were identified:

a. **Action 1/15.** DRSC Risk Register. Chairman tasked Sec to update Risk Register and to liaise with DIO SD Training to provide mitigation statement. Sec explained that the Register had been updated and now also included Laser Risk ID 11945 Lack of Laser Eye Protection (see Enclosure 1). **Closed.**

b. **Action 2/15.** RSN 5 – 15 Use of Pistols on MoD Ranges. Chairman stated that to date, there is no demonstrable evidence or reasonable assurance that firers will only use pistols (with shoulder stocks) that are permitted by the current UK Firearms Legislation. As such, the draft RSN 5- 15 will not be approved and tasked the Sec to liaise with the Home Office to review the content of UK Firearms Act 1968. Chairman explained that he would not permit the use of any other pistol (other than the Long Barrelled Pistol currently used with shoulder stocks) to be used on MoD ranges. **Closed.**

c. **Action 3/15.** Live Firing Overseas Aide Memoire. For all future OTR Enduring ranges, the range will be registered via, PJHQ with the DRSC Secretariat and will be given a unique DRSC Range Serial Number and will be

added to the MoD inventory of ranges. PJHQ are to review its status after 1 year and then every 6 months and seek to apply full range management as soon as reasonably practicable. Sec was tasked to produce a draft Range Safety Policy Letter (RSPL) to reflect this decision and that the LF Overseas Template would not be published until such time as the RSPL is approved and published. Sec explained that RSPL 16-01 was issued on 10 Apr 16 and that the contents would be included in the updated DSRP. **Closed.**

Item 6. Report Chairman DRSCWG

9. Chairman Defence Safety Committee Working Group (DRSCWG) stated that the 2nd Meeting was held on 9 Mar 16, a summary is as follows:

a. **Onion Range - Falkland Islands.** ██████████ stated that the splitting of Onion Range into 2 smaller ranges - East and West was best kept as one single area, with Range Control being responsible for de-conflicting the training activities as necessary (movement boxes etc) and allowing the traces to overlap each other if needs be. There is no requirement for any extra 906As. Each RCO, running their own separate unit LF events, should sign in and out, on separate lines in the existing range log, and include the details of their own specific planning traces in the (dd) Remarks column. In the event of two units using Onion Range simultaneously, it is strongly recommended that Range Control issues a Daily Range Summary for the duration of the shared use, rather than a weekly schedule

b. **Dry Training Areas.** ██████████ raised the issue that Dry Training Areas (DTA) are not covered in JSP 403. Currently DIO are going through the requirement for what is considered a safe place for a DTA, and that whatever comes out would then be considered best practice for non-DIO DTA. The SOI for DTA will consider that the site specific risk assessment is key and that there will be no 'standard solution' as the sites vary.

c. It is considered that one of the biggest issues will be bye-laws. There is a question of whether it will feed into JSP 403 or if not who will own the problem – the main problem being OME (for example trip flares). It was considered that JSP 403 is primarily for live fire and hence not suitable for DTA. There was a discussion of DSA providing regulation requiring the site specific risk assessment. Chairman DRSCWG questioned that if there is no assurance, how is the regulation going to be enforced.

d. **Civilian Clubs – Fire with movement.** ██████████ stated that within DIO, the practice involving fire with movement for Civilian Gun Clubs was prohibited, but current regulation within JSP 403 does not restrict it. The committee agreed that this should apply for all MoD ranges for the following reasons:

(1) Safety – civilian weapons are not subject to a Safe, Suitable for Service (S3) process as all In-Service weapons. If a weapon was dropped there is no guarantee that the weapon would not function.

(2) Safety – not all civilians are capable of maintaining control of a weapon after a run down.

(3) Culturally – civilian gun clubs should not be carrying out para military style training on MoD ranges.

e. **Application of 200mil rule.** ██████████ explained that he had been approached by HQ Cadets to question why CFAVs and Cadets are not permitted to participate in the 200mil rule either as range staff or firers. ██████████ explained that a trial had been conducted to assess the marksmanship standards of Cadets and it

was discovered that for the first 5 – 8 rounds the standard was on par with trained soldiers but this could not be maintained throughout firing. It was recommended that the reduced angle of 200mils between adjacent ranges could not be applied by CFAV, Cadets and Civilian Gun clubs using MoD ranges.

f. **Range Planning System Project.** [REDACTED] informed the committee that DIO IAC has temporarily suspended the Range Planning System (RPS) Project due to funding issues. Prior to the change in commercial procedures for digital projects, there was a CIPO financial commitment, (£5m) which has now been withdrawn due to CIP rebalancing. The project is now classified as a digital project by the Cabinet Office. Process dictates that a lack of funding halts the project as new Cabinet Office Control and approvals through the Defence Design Authority require a TLB funding certificate to be in place to allow procurement through the Digital Services Framework 2.

g. **Range Safety Policy Letter 16-01.** Chairman DRSCWG explained that RSPL 16- 01 Out of Area Live Firing Aide Memoire was issued on 10 Apr 16. [REDACTED] commented that he disagreed that for Operational Training Ranges Emerging that no DRSC number is allocated for a period of up to 6 months. It was explained that the RSPL reflected current regulation as prescribed in JSP 403 Volume 1 and that if there was disagreement with regulation, a formal change proposal should be submitted to Sec DRSCWG.

Item 7. DSA DOSR Ch RSIT Report

10. DSA DOSR Ch RSIT gave his report on annual range safety inspections covering the period 1 Sep 15 – 18 Apr 16, including peer review of independent inspectors and associated statistics. Further details can be found at slides 14 – 21 in Enclosure 2.

11. **Activity Status.** The activity status as at end of last month are as follows:

	Indoor	Open	Total
Active	797	707	1504
Temporarily Closed (Reserved)	63	101	164
Total	860	808	1668

12. **Independent Inspections.**

Section 1 – 3 Issued	286
Section 4 Received	345
Section 5 Completed	345

13. **Range Safety Gradings.**

Full Assurance	65
Substantial Assurance	194
No Assurance	2
Not Graded	25
Total	286

14. **Monitoring Activity.**

Independent Peer Reviewed	10
Annual	1

Item 8. Range Accidents and Incidents

15. There had been 17 accidents / incidents on MoD ranges during the period 1 Oct 15 – 31 Mar 16. Further detail is at Enclosure 3. A summary of Accidents / Incidents is shown below at Figure 1.

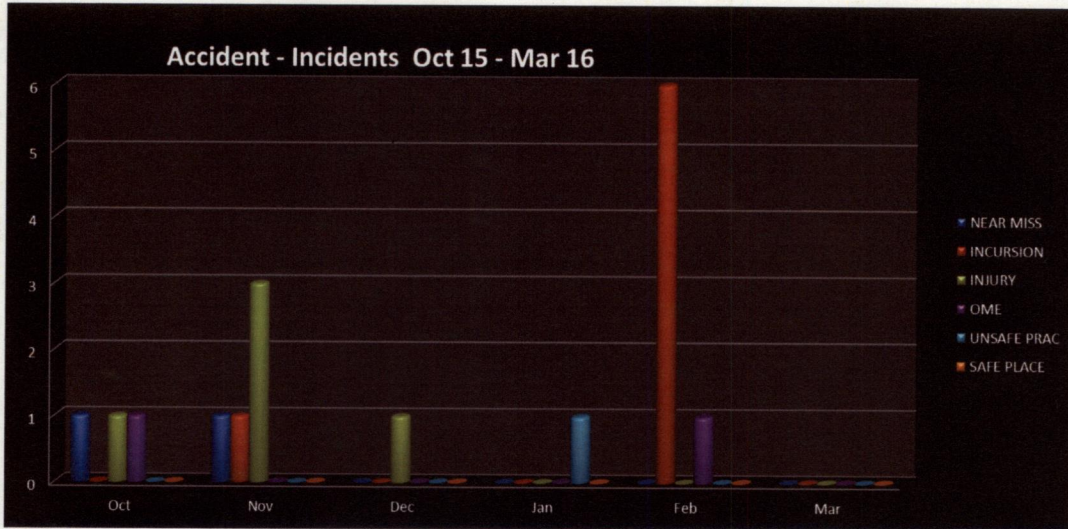


Figure 1

16. Sec explained that within the period a total of 7 range incursions occurred across MoD ranges and that this risk has been recorded within the DRSC Risk Register.

17. **Areas of Concern.** The following graph gives a breakdown of areas of concern of accidents / incidents over the reporting period.

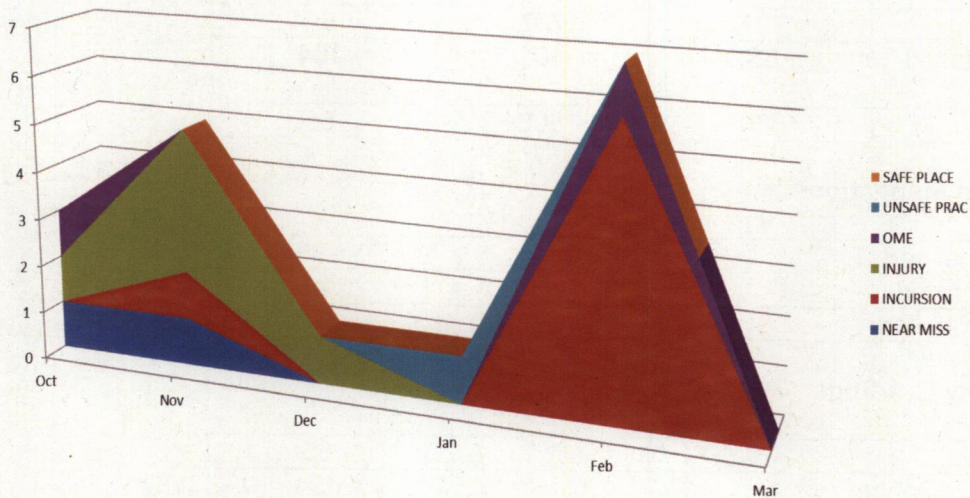


Figure 2

Item 9. Strategic Influences on DRSC

18. The register of strategic influences maintained by the DRSCWG and summarised can be found in slide 25:

- a. CROW 2000 and LR(S) A 2003 Legislation.
- b. MoD Byelaws Review Project.
- c. Greater Coastal Access for General Public.

d. DIO Rationalisation on Ranges and Training Areas.

19. A copy of the DRSC Risk Register is at Enclosure 1.

Item 10. AOB

20. **1* Signature on MoD Form 904.** Chairman explained that under Project 1 – Organisation Separation within PRISM. DSRR highlighted the importance of organisational separation between those responsible for capability delivery and those that have responsibility for safety regulatory functions across Defence. This project will confirm where organisation separation does not currently exist and will look to establish the reason for this. It will examine the impact of moving / reallocating functions / personnel to deliver organisational separation and make recommendations for the way ahead. This is one area where Defence Board endorsement may be required to authorise organisational change.

21. As such he wished a Working Group (WG) to be formed to scope the viability of DOSR TL authorising all MoD Ranges.

a. **Decision.** Sec tasked with establishing a WG consisting of representatives of TLB / Stakeholders and to draft provisional TORs for the WG.

Sec
Action 2/16

22. **Revised MoD Form 1057.** [REDACTED] briefed the committee on the draft version of the revised MoD Form 1057. The 1057 is to become a through life document and composes of several parts:

- (1) **Part 1** – Siting board.
- (2) **Part 2** – BOO formed of an independent chair, RAO, RAU, any other SME's as required.
- (3) **Part 2a** – BOO for a non MoD / Overseas Acceptance Board.
- (4) **Part 3** – Changes to the range.
- (5) **Part 4** – Record of Transfer of RAO / RAU.
- (6) **Part 5** – Permanent Closure of the Range.

a. **Decision.** The committee formally endorsed the revised MoD Form 1057 and tasked the Sec to update all necessary websites for its inclusion.

Sec
Action 3/16

23. **Regulatory Article 1600 – Remotely Piloted Air Systems.** [REDACTED] informed the committee of RA 1600 which details the regulations for Remotely Piloted Air Systems (RPAS) flying over MoD land. He explained that Standing Operating Instruction (SOI) for dissemination throughout DIO regions, which will clarify any issues where aviation-speak is not core business. RA 1600 is significantly different to the UAV information currently published in JSP 403 Vol 1 Part 2 and Vol 3, which will require updating. A copy of DIN Regulation of Remotely Piloted and Remotely Piloted Air System is at Enclosure 4.

24. **Cadet Forces using Locally Purchased Weapons.** [REDACTED] stated that he had been informed by LTARs that the Cadet community fire and use Locally Purchased Weapons (LPW) on MoD ranges without a Safety and Environmental Management System (SEMS) being in place. He stated that within the MoD Form 904 that a range is only authorised for use by MoD personnel firing MoD issued weapons and ammunition this ensures that:

a. Weapon systems performance is within the safety parameters for the range.

- b. That all weapons are subject to the MoDs equipments and inspection support regime.

Sec Note: Sec clarified the current situation with OC SASC TAG and Cadet LPW WG. Cadets are currently prohibited from using LPW on MoD ranges unless a dispensation from the Cadet Duty Holder is submitted to the RAU. The SEMS covers maintenance and standards for Air rifles, Small bore rifles, Full bore rifles & Shotguns. Cadets Branch are following the advice and a template provided by Close Combat Project Team in DE&S. The dispensation letter from the new 2 star is currently in the system after being submitted to ACOS cadets, Cadets Branch submitted a letter last year under the authority of the then GOC Sp Comd setting the conditions under which CF LPW could be used.

Item 11. Valediction

25. Chairman informed the committee that the following member had left on posting:

- a. [REDACTED] – CFI MDP.

He thanked him for his professional contribution and input to the Committees and Working Groups and wished him well in the future.

Item 12. Next Meeting

26. Chairman stated that the next planned meeting was due to held at HQ SASC Training Room, Waterloo Lines, Warminster on Thu 6 Oct 16, commencing at 1000.

(Original Signed)

[REDACTED]
C2 MSF
Sec
Ext 35339

Annex:

- A. Action Plan 2nd DRSC Meeting.

Enclosures:

1. DRSC Risk Register.
2. 2nd DRSC PPT.
3. Range Accidents / Incidents Oct 15 – Mar 16.
4. DIN Regulation of Remotely Piloted Aircraft (RPA) and Remotely Piloted Air Systems (RPAS).

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ACTION PLAN 2nd DRSC MEETING

Ser No	Item	Action	Due Date	Action Lead
MLSRP/1110/09	PRA Coding	Approach ██████████ (ST5) regarding a review of the PRA PA coding for MoD internal verification (i.e. to check that coding is maintainable using MOD resources).	On-going	IE MLST
1/16	Laser Eye Protection	Chairman tasked ██████████ to draft a letter to the PT to inform them of the requirement for the goggles.	May 16	IE MLST
MLSRP/1111/2	LSO Course	A bigger pool of questions for the test is needed and statistics on performance of the test results should be kept.	On-going	IE MLST ██████████
2/16	Establishing Working Group for authorisation of MoD ranges.	Sec tasked with establishing WG consisting of representatives of TLB / Stakeholders and to draft provisional TORs for the WG.	May 16	Sec
3/16	Revised MoD Form 1057	The committee formally endorsed the revised MoD Form 1057 and tasked the Sec to update all necessary websites for its inclusion.	May 16	Sec