[redacted]

DERA/Ranges/TD/7/5

25 June 2001

Depleted Uranium Firing Environmental Review Committee (DUFERC)

Minutes of the 26th meeting, held at BAE Systems ROSM Featherstone on 20 June 2001.

Present:

[redacted]	Technical Director, T&E Ranges (Chairman)
[redacted]	RPA to DERA, DRPS Alverstoke
[redacted]	Research Manager, DRPS Alverstoke
[redacted]	Research Scientist, DRPS Alverstoke
[redacted]	GVIU Team Leader for DU
[redacted]	Ops Manager, DERA Eskmeals
[redacted]	[redacted]
[redacted]	Project Manager, BAE Royal Ordnance
[redacted]	CESO(Army) Netheravon
[redacted]	Commandant, Kirkcudbright Training Area
[redacted]	[redacted]

1. Chairman's introductory remarks

The Chairman thanked ROSM for hosting the meeting and providing an interesting and informative tour of the CHARM 3 production facility. The Committee had now benefited from the opportunity to view at first hand practically all aspects of DU operations. He welcomed [redacted] and [redacted] who were attending for the first time.

2. Apologies for absence

Communications had been received from:

[redacted]	D SEF Pol, Secretary MoD DU Working Group
[redacted]	[redacted]
[redacted]	MoD DEC (DBE)
[redacted]	DRPS Alverstoke

3. Minutes of 25th meeting

3.1 Accuracy

To complete the accuracy of an annexe to the previous minutes, [redacted] described the correct title of his branch as CESO(A) - ~~Chief~~ Centre Environment and Safety Officer (Army). [redacted] informed the meeting that the acronym of DRPS remained unaltered, but now referred to 'DSTL Radiological Protection Services' (DSTL = Defence Science and Technology Laboratories).

[redacted]

[redacted]

3.2 Actions arising

Action 25/1: [redacted] to discuss this subject with the Chairman of the DU Working Group, [redacted] - Head of GVIU. The discussion had taken place, and it had been agreed that DERA/QinetiQ Ranges would continue to require a committee to regulate operations involving DU. However, now that the MoD Working Group was in existence, DUFERC would take on a less wide-ranging role. **Complete**

Action 25/2: [redacted] to circulate the latest planned dates of the remaining serials to be fired at Kirkcudbright. **Complete**

Action 25/3: [redacted] and [redacted] to liaise and establish a suitable system for informing the 'DU community' of the contents of Ministerial briefings and the answers to PQs and PEs. **Discontinued (see 26/8)**

Action 25/4: [redacted] to review the records and provide details of the number of round breakups and 'missing' rounds, with definitions. **Complete**

Action 25/5: [redacted] to circulate contact details for DUFERC members with the minutes. **Complete**

Action 25/6: [redacted] to circulate a copy of the report on analysis of the replicate samples taken by D&G Council with the minutes. **Complete**

4. Eskmeals update

4.1 Plans for VJ Battery

The Ranges Business Manager (Land), [redacted] at Fort Halstead, had held discussions with potential customers over their likely requirements for the use of VJ Battery. (The last time it was used was September 1995). Verbal responses indicated that it was unlikely to be needed in the foreseeable future. Written confirmation was being sought. [redacted]

[redacted] S.27 International Relations

4.2 Manpower for monitoring

DERA was currently awaiting Ministerial approval for manpower reductions at Eskmeals. A plan had already been agreed between the Ranges management and trade unions. Attention had been given to preserving key skills of individuals such as [redacted] (SERCo) and [redacted] (DERA). Additional staff were being trained in radiological monitoring. The mechanism by which DERA would recover costs of monitoring had still to be worked-out.

4.3 Licensing

For many years, there had been a significant quantity (over 3 tonnes) of DU plate stored at Eskmeals, which belonged not to the Ranges but to the

[redacted]

[redacted]

manager of the Armour package in the Applied Research Programme in DSTL at Fort Halstead. In January this year, DERA had compiled a list of all its holdings of DU, to which T&E Ranges had contributed accurate information. However, the material at Eskmeals had been missed off the list when DERA had applied to the Environment Agency for a licence.

Bearing in mind the short time remaining before Vesting Day, rapid action was needed to avoid the risk of prosecution. [redacted] had already submitted details for addition to the licence application to DERA Chief Health and Safety Adviser some weeks earlier. Variations to licences usually took about 4 weeks to be processed.

Action 26/1 [redacted] agreed to contact [redacted] and [redacted] at Farnborough, to enquire concerning progress.

Action 26/2 [redacted] was acquainted with the local Environment Agency Inspector, and agreed contact him to demonstrate that we have action in hand.

Ideally, the plate should be returned to the owner at Fort Halstead, but it was believed this may cause the licensed limits there to be exceeded.

Action 26/3 Mr Anderson agreed to talk to [redacted] at Fort Halstead, to determine how close their current holdings were to licence the limits, and whether they could take delivery of the plate.

Another option would be to remove the plate to Kirkcudbright until it could be returned to the owner.

Action 26/4 [redacted] agreed to pursue the authorisation for this, but pointed out that it would probably be four weeks before an answer could be obtained.

5. Kirkcudbright update

5.1 Firing programme

[redacted] detailed the intended firing programme, but warned that it was very much subject to restrictions preventing the spread of foot and mouth virus. Currently just three more trials were planned, a reduction from the potential seven mentioned previously. These included a low-temperature strength-of-design test at Raeberry beginning 9 July, a worn barrel test at Ballig and Raeberry beginning 16 July and a life evaluation test at Doon Hill beginning 18 September. No further production proof trials were expected. In-service proof firings would be restricted to the charge without the projectile.

5.2 Survey

The proposed radiological survey at Kirkcudbright had unavoidably been postponed due to the foot and mouth restrictions, and was not expected to

[redacted]

[redacted]

take place until these were lifted in September. The DRPS survey team was soon to be deployed to Kosovo. It was noted that CESO(Army) had already made payment for the survey. DOS Land.

5.3 Public meeting

The public meeting in Kirkcudbright Town Hall on 30 March, led by USofS Dr Lewis Mooney, had passed without major incident, despite some tough questioning by members of the public and Council. Dr Mooney had given a robust response to the assertion that firings should be discontinued, highlighting the fact that UK Armed Forces deserved the most effective anti-armour weapons available. He had also made it clear that the MoD did not consider it possible to recover fired rounds from the sea bed. Several of the DUFERC members had contributed to Dr Mooney's briefing material. [redacted] suggested that if there were any further public meetings, it might be effective to invite one of the RN diving team to give the audience an impression of how difficult the diving operations are. This might suppress further calls for recovery of the fired projectiles (which in any case are extremely hard to locate).

6. DU gardens update

6.1 Results of diving operations

[redacted] described the highly successful operation carried out by the RN Northern Diving Group in late April/early May. The damaged rig had been removed, together with anchors and chains. Six out of ten remaining sample rods had been recovered. The location of the remaining four had been narrowed to a small area. The buried samples had been re-located, the co-ordinates recorded by GPS and a small buoy deployed. Three had been removed for analysis. The next dive was scheduled for the end of July, when it was hoped to recover the remaining four rods and another three of the eighteen remaining buried samples.

6.2 Data produced to date

Analysis of the open-water samples showed an average of 10% mass loss by corrosion during the first 3 months and 30 - 35% over a period of 9 months and 3 weeks, with some samples as high as 40%. There was exceptional corrosion at points where the smooth samples adjoined the PTFE rods - probably an experimental artefact. There were significant pits up to 0.5 cm deep on the threaded samples. None of the internal bores in contact with the PTFE rods were significantly corroded, therefore the situation was representative of a DU penetrator round. The buried samples exhibited a mass loss between 7.5% and 28.2% over a period of 28 weeks. Together, these results suggested a residence time on the sea bed of 3 - 4 years.

Retrievals of samples from the land gardens at Eskmeals and Kirkcudbright had taken place in October 2000 and January 2001. Since then, foot and mouth restrictions had prevented further recovery. The Eskmeals samples

[redacted]

[redacted]

had shown less than 4% mass loss due to corrosion. The Kirkcudbright samples showed a lot of corrosion in October but little in January, suggesting that there may have been a problem with the experimental method. This could be overcome at the next retrieval.

Liaison had taken place with [redacted] in the US, who was carrying out related work. He had found that whole rounds which had been fired would corrode less quickly than those which had not. This suggested that an annealing process was taking place, either as a result of high combustion temperatures in the barrel or kinetic heating during flight. [redacted]

[redacted]

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6.3 Plans for marine garden

Discussion took place on the difficulty of diving operations in low visibility and tidal currents in excess of 4 knots. It was noted that the divers did not consider the conditions dangerous, except when sharp objects and moving chains had to be negotiated during high sea states. However, it was agreed that a rig which could be raised and lowered may be preferable to the previous arrangement.

The Chairman proposed that the results obtained from open water and buried samples to date, plus those which could be expected in future, would provide sufficient information to enable an estimate to be reached of the time taken for complete corrosion of rounds. There was also the open question of who would pay for the design, construction and placement of a new rig, once DERA had entered the private sector.

[redacted] offered to approach [redacted] in MoD Centre, who was in the process of agreeing funding for a programme of work on DU. An additional source might be DLO. The marine corrosion work had, in fact, been included in an earlier proposal to [redacted], but DERA had continued to fund it as the scope of the programme had not yet been finalised.

Action 26/5 [redacted] to request funding from [redacted] and/or DLO.

It was agreed that, if funding became available and it was also possible to obtain samples of fired DU, then there would be value in replacing the rig. Otherwise, data would continue to be gathered from the samples remaining in the Solway Firth.

[redacted] raised the possibility of the divers searching in known impact areas to try to recover recently-fired rounds for experimental purposes, if there was sufficient time during the July visit.

Action 26/6 [redacted] agreed to provide an estimated position of the splash point for the next firings.

[redacted]

[redacted]

7. Parliamentary questions and enquiries

7.1 South Essex Health Authority

The Chairman reported a series of enquiries by the South Essex Health Authority, on operations involving DU and other radioactive substances at Foulness and Shoeburyness. These had arisen from concern over cancer clusters in the locality. Questions relating to Foulness had been referred to AWE, since all such activities pre-dated DERA's management of the site. DERA's responses on Shoeburyness confirmed that there were no records to suggest DU had been fired on that range. A quantity of DU rounds had been stored there briefly in transit to Kirkcudbright but this caused no radiological hazard to range workers or members of the public.

7.2 It appeared that small DU projectiles had been fired during the 1980s on the Foulness site within a totally enclosed facility. This had been designed to produce no radiological hazard and it had been decontaminated by AWE before it was transferred to DERA (since when it had not been used). Water used by workers to wash their hands after handling the projectiles had allegedly been disposed-of into the estuary over the sea wall. Although the radioactivity of this water would have been extremely low, a member of the public had raised concern over the hazard to people swimming along the neighbouring coastline. The local MP, Sir Teddy Taylor, had submitted an enquiry. DERA had agreed to conduct a survey of the area, in the hope of allaying fears. The Chairman requested that DRPS should conduct the survey, which was expected to cost £5-6k.

Action 26/7 [redacted] agreed to prepare an estimate and liaise with the site regarding a suitable date.

In general, the number of PQs and PEs had fallen considerably from the dramatic level between January and March 2001. It was nevertheless agreed that a focal point was needed, through which all Parliamentary business concerning DU would be conducted. [redacted] had recently been appointed to lead the DU team in GVIU, and was thus ideally placed to fulfil the Parliamentary role.

Action 26/8 [redacted] offered to convey this decision to QinetiQ Press Office ([redacted]).

8. Formation of QinetiQ

8.1 Land ownership

It had been agreed at senior management level that, on vesting day on 2 July, the T&E Ranges estate would remain in MoD ownership, while the new company QinetiQ would operate the facilities within the estate. As a result, the liability for legacy issues such as radioactive contamination would also remain the responsibility of MoD.

[redacted]

[redacted]

8.2 Arrangements for DUFERC

As it was likely that QinetiQ would continue to carry out a small number of firings until the end of October 2001 and would also provide a proportion of the workforce for monitoring and managing the legacy contamination, it was agreed that there would be a continuing role for the DUFERC, at least in the short term. Copies of the terms of reference were examined at the meeting and it was agreed that they remained appropriate for DU-related activities. However, there were also other radioactive isotopes to consider, such as Thorium 232. To account for operations involving these, the Chairman proposed that the Committee should re-structure itself in two ways:

so far as DU is concerned, concentrate on the firing programme and the monitoring at Eskmeals and Kirkcudbright, while leaving wider DU issues to the MoD DU Working Group;

expand its sphere of interest to include other radioactive materials in use on the ranges operated by QinetiQ.

Action 26/9 [redacted] agreed to discuss this proposal with the Ranges Sector Director and QinetiQ Chief Health, Safety and Environment Advisor.

8.3 Licensing

The discussion on licensing at Eskmeals led to a more general point. DERA had applied to the Environment Agency for licences to hold a variety of radioactive items. Some of the applications were rushed, and had proved to be inaccurate. If licences were not in place by 2nd July 2001, there was a risk Environmental Agency may prosecute. The EA apparently felt that it had 'bent over backwards' to complete the registrations in time, and New DERA had not given the matter sufficient attention. The Ranges management team needed to ensure that all necessary steps had been taken for Ranges sites.

Shoeburyness had recently won a bid to de-militarise a quantity of DU shot (several tonnes of CHARM 1). The site registration had not been sufficient to cover the quantity of radioactive material and, if the job had gone, ahead then it would have pushed the site holdings over the licensed limit. Luckily, DRPS had realised in time, and called a halt. Site Director's Reps. needed to be aware of the implications of exceeding the licensed limits on a site. Project Managers should not commit any site to work which would cause limits to be exceeded.

for tritium items above which must be reg.

The Scottish Environment Protection Agency (SEPA) had begun imposing a limit of 20 GigaBequerels (GBq), above which material was defined as Hazard Grade and must be registered. This meant that some gaseous tritium light sources, certain thermionic valves, artillery directors and even prismatic compasses now came under legislation in Scotland. Exemption orders existed for military equipment, but as QinetiQ would not be a MoD Agency, these exemptions would no longer apply after 30 June.

[redacted]

[redacted]

West Freugh had already experienced problems, resulting from different interpretation of the rules in Scotland to that in England and Wales. The transportation of DU shot from Eskmeals to Kirkcudbright could be affected. It was believed possible that the Environment Agency (EA) may adopt SEPA's lower limit. Ranges needed to be aware of the items this would affect. The situation would become clear after a forthcoming meeting between the EA and SEPA.

9. Any other business

9.1 The Chairman reported that a review had been completed of past activities on the Ranges involving Thorium 232 sources. These included Milan flares and some aero-engine casings. In the majority of cases, it was believed that residual levels on land were below regulatory concern and it was expected this would be confirmed by brief surveys at a later date.

Action 26/10 [redacted] to seek funding from MoD (the land owner) for this activity, identify areas and arrange surveys by DRPS.

9.2 [redacted] related that the recent RWMAC survey on handling of radioactive waste from DU operations on the ranges had made three recommendations:

the isotopic breakdown of waste materials should be indicated;
there should be a review by MoD to enable more detailed information to be released;
there should be a Land Quality Assessment at Eskmeals and Kirkcudbright.

Action 26/11 [redacted] agreed to liaise with [redacted] concerning RWMAC's exact requirements for additional information and enquire within GVIU to establish whether it could be released.

Action 26/12 For the LQA at Kirkcudbright, the forthcoming survey should provide all the information necessary. However, [redacted] agreed to establish what additional sampling points within the range boundary at Eskmeals would be required.

9.3 During firings at Kirkcudbright, the weight of shot fired and the number of rounds had been reported regularly over radio and telephone. This could allow a listener to calculate the mass of each round. It was unclear whether this figure carried a security classification.

Action 26/13 [redacted] agreed to contact DPA to determine whether the mass is classified.

9.4 [redacted] informed the Committee of difficulties in obtaining an export licence for the DU swarf destined for Starmet. Euratom was insisting on physical inspection, which would compromise commercial and national

[redacted]

[redacted]

security. It was hoped that agreement would be reached to restrict the inspection to the secure holding area outside the production facility.

9.5 The Chairman informed the meeting of his retirement from Government Service on 29 June. Members thanked him for his efforts in running the Committee for the past three and a half years. The Chair would, in future be taken by [redacted]

10. Date of next meeting

It was agreed that the next meeting would be held in Room 6/02, St Christopher House, London at 1030hrs on Wednesday 12 September 2001.

Notes by [redacted]
Drafted by [redacted]

Distribution

Those present plus:

[redacted]	Managing Director, TLS Division
[redacted]	Sector Director, DERA Ranges
[redacted]	Ops Director, DERA Ranges
[redacted]	[redacted]A
[redacted]	Sec MoD DU Wkg Gp
[redacted]	MoD, D SEF Pol
[redacted]	MoD, DEC(DBE)
[redacted]	DERA Press Office
[redacted]	[redacted]
[redacted]	Project Manager, DERA Ranges

[redacted]