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**Minutes of the Seventeenth Meeting of the
Depleted Uranium Firing Environmental Review Committee
held at ████████████████████ on Thursday 26 November 1998**

Present

████████████████████	DERA Technical Director	(Chairman)
████████████████████	DERA Eskmeals	(Secretary)
████████████████████	Hd.Ops, DERA (Eskmeals)	
████████████████████	RSO, DERA (Eskmeals)	
████████████████████	DRPS	
████████████████████	DRPS	
████████████████████	Chief H&S Advisor, DERA Farnborough	
████████████████████	T&E Ranges Safety Advisor, DERA Haslar	
████████████████████	Commandant, Kirkcudbright Training Area	
████████████████████	MoD, D/SEF Pol	
████████████████████	MoD, SSO(PE&C)	
████████████████████	HQ QMG	
████████████████████	DERA Farnborough, MSS	
████████████████████	DRPS	
████████████████████	RO Chorley	

1. The Chairman welcomed ████████████████████ and ████████████████████ to the meeting, and asked that everyone introduce themselves for the benefit of newcomers.

Item 1: Apologies for Absence

2. Apologies for absence were received from ████████████████████ DERA Eskmeals, and ████████████████████ DERA Farnborough.

Item 2: Minutes of the 16th Meeting

3. The minutes of the meeting held on 3 September 1998 were approved as an accurate record of the proceedings.

Item 3: Matters Arising

4. Actions from the 16th and previous meetings were discussed:
 - a) Action 16/1. A reduced programme of investigational work is to be presented to DERA Central for internal funding. The programme as previously outlined had been formalised and prioritised; the creation of both terrestrial and underwater DU 'gardens', investigations into the action of the material in these gardens and computer modelling of dispersion were assigned the highest priorities. The Management Cell is currently funding the work carried out by the MSS and ████████████████████. Modelling is to be carried out by ████████████████████ at a cost of £12k. Earlier actions subsumed into:

[REDACTED]

Action 17/1: [REDACTED] to progress internal DERA funding.

Action 17/2: [REDACTED] and [REDACTED] to await the decision on internal funding and then discuss the matter further with the MoD.

- b) Action 14/8. [REDACTED] outlined the trial recently carried out at Kirkcudbright to investigate the environment within a Challenger turret. Initial results indicate that, although there are traces of DU in the barrels and fume extractors these do not represent a significant hazard to the tank crew and only a minor hazard to maintenance crews. There is to be a follow-up trial in December 1998 which will utilise specially manufactured DU rounds without the usual IVD coating. Action to consider specifically the environment within a Challenger turret by means of a special trial is **continuing**.

Post-meeting note: The follow-up trial has been completed and the samples taken are with DRPS for analysis. The final report is anticipated to be complete by the end of January 1999.

- c) Action 16/2. Specification of DU used in CHARM 1 and 3 manufacture received. Action **complete**.
- d) Action 16/3. Contact details within MoD Finance Directorate received and [REDACTED] has written. Action **complete**.
- e) Action 15/11. [REDACTED] report on the likely levels of waste arisings on decommissioning VJ Battery is not yet complete, but a brief outline of its content was given. The report will be circulated as soon as possible after completion. Action **continuing**.
- f) Action 15/12. Alternative uses of VJ Battery were still under consideration. With regard to future firings, it was confirmed that there is at the moment no perceived future need for the facility. Action **complete**. [REDACTED] noted that the EA had requested that a form of LQS be carried out within the Controlled Area at VJ.

Action 17/3: [REDACTED] and [REDACTED] to establish protocols for, and estimate the cost of, the LQS.

- g) Action 16/4. [REDACTED] report on exposure risk has been redrafted and approved. Action **complete**.
- h) Action 16/5. This action to distribute the DRPS report on Exposure Risk was **discontinued**. There is a perceived problem of land contamination at Kirkcudbright and sampling results could suggest the migration of DU contamination around the Range; it is certainly true that sabots travel

[REDACTED]

further than originally thought. It was noted that, whilst the problem had originated during the firing of development rounds and current and future firing of production proof should be OK, there are indications that this is not so. It was agreed that distribution of the report should be delayed while further information on land contamination is gathered and the implications assessed.

Action 17/4: DRPS [REDACTED] and Eskmeals [REDACTED] to gather the information and assess the implications.

- i) **Action 16/6.** A short procedure for handling recovered DU rounds was circulated. Action **complete**. It was noted that a PR 'script' is also required.

Action 17/5: Eskmeals [REDACTED] to forward local information to [REDACTED] who will obtain the existing PR information, collate the two sets of information and forward it to [REDACTED]

Action 17/6: [REDACTED] and [REDACTED] to arrange for the manufacture of two transit containers for recovered projectiles to be held at Eskmeals and Kirkcudbright.

Action 17/7: [REDACTED] [REDACTED] [REDACTED] and [REDACTED] to agree on the recommended sequence of events for recovery and prepare a flowchart.

- j) **Action 16/7.** Various options for recovery of a fired DU projectile had been investigated and all had presented extreme difficulties. The question of whether such an exercise is needed is to be raised with the customer.

Action 17/8: [REDACTED] to discuss with the various customers any requirement for the recovery of a fired DU penetrator.

Item 4: Kirkcudbright Update

5. As noted in Minute 4.b) the DU toxicity trial has been completed and there is to be a follow-up trial, scheduled for December 1998. Initial conclusions are that there is no significant hazard to the tank crew. The final report will be produced after the follow-up.
6. It is estimated that approximately 30% of the discarded sabots have now been recovered but that they are now being found further afield. Of those recovered, about 10% have been found to be contaminated. Dose rates are generally trivial but environmental effects also need to be considered, including the possibility of a build-up of DU contamination in the strike areas.

[REDACTED]

It has not yet been possible to locate a contaminated sabot and investigate samples taken from the immediate area.

7. [REDACTED] noted that the SEPA would probably not be happy for DERA to leave contaminated objects (i.e. sabots) lying around and that a concentrated effort to find and clear them needs to be made. The EA had allowed transport of those found back into England but require a worst-case radiochemical analysis to be carried out. Collection of sabots discarded during the next trial should provide good 'worst case' material to work with.
8. It appears that livestock may be grazing contaminated areas. [REDACTED] reported that while this situation was not ideal, the animal indicators so far analysed indicate negligible intake of radioactive material.

Item 5: Eskmeals Update

9. A note from [REDACTED] was circulated regarding his attendance at the last meeting of the Radioactive Waste Working Group (RWWG). Following his presentation on the potential of using Eskmeals as a temporary holding site for low and intermediate level waste, before proceeding further, the RWWG requested details of the likely quantities of waste that producers might wish to store. No responses had yet been received and [REDACTED] will be contacting the RWWG Chairman after the 27 November 1998 deadline.

Action 17/9: Eskmeals [REDACTED] to put forward a paper to advance the proposals for an interim storage site at Eskmeals. [REDACTED] to follow this up at the next meeting of the RWWG, scheduled for January 1999.

Item 6: MSS Follow-up Report on the *Destiny* Round

10. [REDACTED] circulated a copy of his report and gave a presentation covering the main points from the second stage of analytical work on the round.
11. It appears that previous work on corrosion of DU may have been carried out, possibly by AWE(A), in the early 1990s. [REDACTED] agreed to approach some former colleagues on an informal basis to see if he could obtain confirmation or any further information about this.

Item 7: Proposed Establishment of DU 'Gardens'

12. [REDACTED] outlined various proposals for laboratory work and the establishment of both terrestrial and undersea DU gardens and how this could be aided by [REDACTED] work during his possible sabbatical visit.
13. It was intended to plant terrestrial DU gardens in appropriate locations at both Eskmeals and Kirkcudbright, plus an undersea garden offshore at Kirkcudbright. This would allow examination of complexing and migration of

[REDACTED]

UO₂ and comparison of the data obtained with that from accelerated corrosion trials in the laboratory.

14. [REDACTED] confirmed that Royal Ordnance would be prepared to provide the DU and [REDACTED] offered the use of facilities at the SMC in Farnborough.
15. The aim of the experimentation is to establish an 'in the field' corrosion rate and develop a migration model. This should give a better understanding of how the material degrades and how the products react, leading to better information regarding food chain links.
16. Various topics relating to the experimental programme were discussed, including possible locations and security arrangements for the gardens. With regard to the undersea site at Kirkcudbright, it was agreed that the regulatory authorities should be informed, but not the local Council at this stage. [REDACTED] staff costs are to be funded by DRPS and T&E Ranges. T&ER had agreed to provide £20k in 98/99 and £40k in 99/00.
17. [REDACTED] said that he had met [REDACTED] during a visit to the US in September, and that the [REDACTED] had requested an identified programme of work to pursue during his time in this country. One other aspect to be considered was that of security and confidentiality regarding the [REDACTED] attachment.

Action 17/10: All members to submit proposals to [REDACTED] who would collate proposals and produce an outline programme for [REDACTED] as soon as possible.

Action 17/11: [REDACTED] to arrange within DRPS for appropriate security/confidentiality clearances to be obtained for [REDACTED]

18. [REDACTED] also mentioned that he will be visiting the US in February 1999 and that he would be pleased to pass any questions and comments on to [REDACTED] when he saw him then. [REDACTED] at [REDACTED] [REDACTED] had also indicated that he would be happy to sponsor a visit to the DU garden there on request.

Action 17/12: All members to forward to [REDACTED] any questions for [REDACTED] preferably by the end of 1998.

19. It also appears that there is a comprehensive library of references to DU in the US and it was suggested that it might be possible to arrange for mutual exchanges of (unclassified) information.

Item 8: Composition of DU Projectiles

- [REDACTED]
20. The subject of the specific composition of DU projectiles was discussed. [REDACTED] assured the Committee that there were strict QC procedures in place which included the analysis of random samples to confirm the composition. The QA procedures also confirmed that the DU used was non-reactor cycle material. [REDACTED] requested written confirmation, which [REDACTED] agreed to arrange.

Action 17/13: [REDACTED] to give [REDACTED] written confirmation that the DU used in the production of CHARM projectiles is not reactor cycle material.

21. A question was raised regarding ownership of the fired material. [REDACTED] confirmed that it has been and is assumed to be DERA property once fired.

Item 9: Any Other Business

22. For information, [REDACTED] informed the Committee of possible aircraft trials in the vicinity of the [REDACTED] target area.

Item 10: Date of Next Meeting

23. It was agreed that the next meeting is to be held at [REDACTED] on Thursday 4 March 1999, commencing at 1230.

There being no further business, the Chairman thanked everyone for attending and the meeting was closed at 1415.