



Our Reference:

D/GVIU/7/1/8/2

Date:

10th January 2003

Present:			
Board:	Professor David Coggon Surg. Cdre Nick Baldock Mr Ron Brown Dr Chris Busby Dr Peter van Calsteren Mr Jim Glennon Miss Beverley Green Mr Norman Green <i>representing</i> <i>Miss Frances Fry</i> Professor Malcolm Hooper Dr David Lewis Dr Gordon Paterson Mr Shaun Emery	MRC INM DRPS LLRC OU NGV&FA RBL NRPB GVA INM BRC GVIU	Chair Secretary
Observers:	Air Cdre Simon Dougherty Mr Alan Duncan Mr Neville Higham Mrs Brigid Rodgers Dr Hilary Walker Mrs Janie Walker Miss Rosie Wane Wg Cdr Charlie Wilcock	SGD HJA HSE GVIU DH GVIU GVIU SGD	
Apologies:	Mr Ivor Connolly Professor Nick Day Miss Frances Fry Professor Ian Gilmore Dr Muir Gray Dr Len Levy Dr Margaret Spittle Professor Brian Spratt	NGV&FA IPH NRPB RBL NSC MRC IEH MH RS	

Item	Discussion and Decisions	Actions
------	--------------------------	---------

		(Action date)
1.	<u>Introduction</u> a) The Chairman welcomed Jim Glennon who was replacing Ray Bristow as the NGV&FA representative, Wg Cdr Charlie Wilcock observing on behalf of Surgeon General's Dept and Mr Norman Green representing NRPB. b) The Chairman noted that Professor Nick Day had not yet been able to attend a DUOB meeting and proposed to write to him to ask about his future plans with regard to the Board. c) The Chairman stated that the main business of the meeting was to progress the Statement Of Requirement for the next stage of the pilot study.	
2.	<u>Minutes of Last Meeting</u> a) Malcolm Hooper asked for a line to be added to the minutes of the sixth meeting regarding Andrew Taylor's statement that the NEQAS laboratory were not used to dealing with ng/L quantities of analytes. b) Chris Busby queried the statement in Section 6c of the last minutes which stated 'the questionnaire would be sent to the co-ordinating office'. Chris asked if it had been decided that each sample should be split and one aliquot sent to a representative of the veterans. The Chairman stated that no exact details had been decided but that the DUOB was aware of the need to maintain sample security c) The minutes were accepted as a true record subject to the change detailed at 2a. <u>Action 7.1. Secretary to amend minutes of 6th DUOB and circulate</u>	Secretary (8/11/02)
3.	<u>Matters arising from last meeting</u> a) A full list of actions arising from previous meetings and their current status is attached at Annex A. b) The Chairman stated that the meeting of the laboratories involved in the pilot exercise had taken place on 13th August 2002 and asked whether the minutes of that meeting had been circulated. He also stated that he had circulated his ideas on the next stage of the pilot exercise. The Secretary confirmed that these had been circulated by email but undertook to circulate a hard copy. <u>Action 7.2. Secretary to circulate minutes of 'Laboratory' meeting on 13/8/02 and the Chairman's ideas on the next stage of the pilot exercise</u> c) All members of the DUOB agreed on the need for an extension to the pilot exercise. d) Brigid Rodgers gave an update on the MOD's correspondence with Professor Schott. MOD had written to Prof. Schott on a number of occasions asking for a protocol for his proposed study of chromosome aberrations. Prof. Schott had provided a questionnaire that was given to those he had tested but not a protocol. Malcolm Hooper said that he believed that ethical review was treated differently in Germany from in the UK and that the ethical acceptability of the investigation was covered by the presence of a notary to witness the testing. Jim Glennon confirmed this, having been one of the veterans tested by Prof. Schott. The Chairman said that any application for assistance in the recruitment of subjects from a UK body such as MOD would	Secretary (8/11/02)

	need to satisfy the UK's ethical requirements. e) David Lewis said he had some papers on chromosome aberrations that might be of interest to the DUOB. He offered to send these to the Secretary for circulation. <u>Action 7.3. David Lewis to forward 'Chromosome Aberration' papers to Secretary.</u> <u>Action 7.4. Secretary to circulate 'Chromosome Aberration' papers.</u> f) Gordon Paterson asked about ethical panels within the MOD. Simon Dougherty explained that there were a number of ethical committees for the Army, Navy, RAF and other agencies – the appropriate committee would have to be satisfied for any study that the MOD was involved with. g) Jim Glennon asked if the MOD would accept German troops as a control group for the Schott study. The Chairman said that that was a matter of scientific validity and not for the MOD to decide. Chris Busby stated that there appeared to be a cultural problem with regard to the definition of a protocol and perhaps Prof. Schott should be given some guidance on what was expected. Brigid Rodgers said that guidance had been given. Prof Schott had not replied to recent GVIU correspondence, and the initiative lay with him at the moment. The Chairman stated that the production of a protocol was a standard part of any scientific study. h) A paper by George Etherington on the translocation of particles had been circulated. Chris Busby commented that the paper did not consider the behaviour of very small ceramic particles and suggested that a few quick tests could be carried out, acidifying urine samples with different materials to see if this affected the measured uranium content. The Chairman said that if appropriate, this could be addressed when the main testing programme began. i) Malcolm Hooper's second draft of the questionnaire that would be filled out by those being tested was tabled. Comments on this were to be sent to the Secretary <u>Action 7.5. Comments on questionnaire to be sent to the Secretary</u> j) The Chairman stated that he had written to the MRC to inform them of the delay to the screening programme k) The Secretary stated that he had not yet approached the laboratory offering the AMS method as he was waiting until the details of the pilot exercise were better known. The action was ongoing.	Lewis (15/11/02) Secretary (15/11/02) All (15/11/02)
4.	<u>Update on Pilot Exercise</u> a) The Chairman stated that the Secretary had circulated a draft version of the Statement Of Requirement (SOR) for the extended pilot exercise. Following the discussions at this meeting the Secretary would redraft this document and then arrange a meeting with the laboratories involved to discuss and finalise the SOR. The following items were discussed. <u>Which Laboratories Should Take Part in the Studies</u> b) There was general agreement that the three laboratories which had provided consistent results in the initial pilot exercise should take part in the next stage of the study. There was also the possibility of the AMS laboratory being included – see 3k above. Jim Glennon suggested that the other laboratory that	

produced results in the first pilot exercise be included in the next stage. The Secretary reported that this laboratory had contacted him and indicated that it did not want to be involved in further DUOB work.

Number of Samples to Send to Each Laboratory

- c) There was some discussion about the number of samples that should be used in the next stage of the pilot study. It was agreed that each laboratory should produce one unspiked sample and two spiked samples. These should then be divided and aliquots sent to the other laboratories in the study. Assuming there were three laboratories in the study Laboratory A would therefore test the following:

- Its own samples (one unspiked and two spiked)
- Three samples from Lab B (one unspiked and two spiked)
- Three samples from Lab C (one unspiked and two spiked)

A total of nine samples in all.

Volume of Urine

- d) There was some discussion about the volume of the urine samples to be tested by each laboratory. The Chairman said that he believed the initial pilot exercise demonstrated that there was little difference in testing 100ml or 1L samples. Peter van Calsteren disagreed with this and said that larger samples would yield better results. Jim Glennon expressed concern that some of the samples should be kept back for reference. The Chairman confirmed that this would be done. It was agreed that 500mL samples would be suitable for the task as a compromise between collecting large amounts of urine and providing enough urine for an accurate test.

How to Specify Preparation of Spiked Samples

- e) There had been some disagreement in the comments received on the SOR as to how the contract should specify the preparation of the spiked samples. At one end of the scale the SOR could specify the exact step-by-step method for the production of the samples. The other extreme would be just to state the approximate isotope ratio required and let the laboratory produce it in their own way (with appropriate documentation).
- f) There was considerable discussion on this topic. David Lewis stated that specifying the exact method would take a potential source of variability out of the scheme. Norman Green believed that if the three laboratories used three different methods then one laboratory might blame another laboratory's preparation of the samples if things went wrong. Ron Brown argued that the preparation of the samples needed to be traceable back to international standards. Peter van Calsteren was of the opposing view and stated that the preparation of the samples would be less accurate than the measurement of the samples. He did not see a problem as each laboratory would be analysing the same samples.
- g) It was agreed that the laboratories should be consulted over this issue. Whichever route was chosen, the laboratories would be required to document their methods to fully ensure traceability.

Uranium Standards

	h) There was some discussion about the standard that should be used to prepare the spiked samples. A suggestion had been made by one of the laboratories that ‘a solution of NATO Impactor DU’ could be provided to each laboratory, and that this would provide a more appropriate standard. Ron Brown and David Lewis argued against this approach and insisted that a recognised international standard should be used. Ron Brown stated that the Board had would not know exactly what was in the solution proposed by the laboratory. It was agreed that a recognised international standard should be used in the pilot exercise and this should be discussed at the meeting with the laboratories. i) The Chairman noted that it would be better to minimise the use of the uranium standard in concentrated form by the laboratories to reduce the risk of contamination. He suggested that one of the laboratories could dilute the standard and distribute it to the other laboratories – this would be discussed at the meeting of the laboratories. j) There was some discussion about the merits of testing for U236. Ron Brown said that U236 was not critical to the assessment of exposure to DU, and that the Durakovic paper (The Quantitative Analysis of Depleted Uranium Isotopes in British, Canadian, and US Gulf War Veterans, Military Medicine, Vol 167, August 02) supported this view. Jim Glennon suggested that it was relevant as it indicated exposure to man-made uranium and identified the exposure as due to ‘weapons grade’ uranium. Ron Brown pointed out that the U236 content of DU munitions would probably not be known, so U236 would not provide a reliable quantitative index of exposure. <u>Aqueous Samples</u> k) Chris Busby had commented by email that aqueous samples should also be tested as in the initial pilot exercise. The Chairman thought that this was unnecessary. It had originally been done in case there was a particular problem in measuring uranium in urine that did not occur with aqueous samples, but this appeared not to be the case. Each laboratory would measure their own blanks anyway. There was general agreement that aqueous samples would not be included in the next stage. <u>Natural Uranium</u> l) There was general agreement that the spiking should be done only with depleted uranium and that there was no need for any additional spiking with natural uranium. <u>Nitric Acid</u> m) Chris Busby debated whether dilute nitric acid was sufficient to prevent precipitation in the urine. After some discussion, it was generally agreed that there was no problem with using dilute nitric acid. <u>Thymol</u> n) There was some discussion about whether thymol should be used as a disinfectant in the urine. There was general agreement that thymol should not be used although the laboratories taking part in the study would be asked if they had concerns over this. <u>Threshold for Rejecting Pooled Urine</u>	
--	--	--

	o) It was agreed that 10ng/l was a suitable maximum concentration for the pool of urine collected by the laboratories. If a higher concentration was found then the pool should be rejected and a new pool collected. <u>Actual Ratios and Concentrations to be Used</u> p) The Secretary asked who was going to be involved in deciding the isotope ratios in the spiked samples. There was some discussion of this and a set of ratios was decided upon. The Chairman pointed out that the total uranium concentrations would be determined by the amount of spiking solution needed to obtain the specified ratio (as the same spiking solution would be used for all samples). Ron Brown queried this as all the concentrations would be bunched together. The Chairman accepted this but said that it was a realistic situation. Post meeting note: It should also be noted that the total uranium concentration will also depend on the concentration in the unspiked pooled urine, which will vary between the three laboratories. <u>Other</u> q) Gordon Paterson commented on the complexities of the issues discussed in relation to the initial and extended pilot exercises and their implications for the design and timescale of the definitive testing programme. He suggested that to ensure clarity and understanding, both now and in the future and particularly for individuals who were external to the deliberations of DUOB, it would be helpful to produce a summary document. This might cover the key points relating to both pilot exercises and to the design of the testing programme. Placing such a 'status and progress report' summary document on the website would seem to be helpful to all parties. It would be appropriate to update such a document continuously. It would certainly reflect the spirit of openness and avoid possible misinterpretation of minutes by individuals who had not participated in DUOB meetings. <u>Action 7.6. Secretary to produce a summary document detailing what is happening with the pilot studies.</u> <u>Action 7.7. Secretary to redraft SOR/Protocol.</u> <u>Action 7.8. Secretary to arrange meeting with labs to discuss SOR/Protocol.</u>	Secretary (15/11/02) Secretary (1/11/02) Secretary (1/11/02)
5.	<u>Epidemiological Studies</u>	
	a) See 3j.	
6.	<u>Background/Scientific Issues</u>	
	a) There was a discussion regarding epidemiological findings in Italian personnel who had served in the Balkans. The Secretary had circulated copies of all email correspondence on this subject to inform the debate. Chris Busby introduced the topic saying that he believed it was relevant to the work of the DUOB. He stated that, while there had previously been anecdotal evidence suggesting health effects of DU, he believed that these data provided stronger evidence of an elevated risk of lymphoma from exposure to DU. b) The Chairman noted the small number of lymphoma cases in the Italian study, and that in many the onset of illness had occurred within 12 months of deployment to the Balkans. He said that an environmental carcinogen,	

	particularly if acting through a genotoxic mechanism, would not be expected to produce overt cancer after such a short interval. c) Chris Busby stated that all theories regarding cancer accept that it is a multistage process and that up to five mutations are required to start the cancer growth. Some people already have some of these mutations. Hence there is a sub-group of people who are in a position where exposure to a mutagen might trigger cancer more rapidly. He believed, therefore, that an immediate rise in incidence was to be expected. He suggested that this theory was supported by two pieces of evidence – an increase in cancer in Wales after Chernobyl, and an increase in cancer mortality in nuclear workers over the first 12 months after starting radiation work. d) The Chairman stated that the last observation was likely to reflect a healthy worker effect. A worker would be unlikely to start a new job as a radiation worker when suffering from the late stages of cancer. Therefore, in comparison with the general population, mortality from cancer among radiation workers would be unusually low over the first few months after appointment. Over time, however, this differential would be expected to wear off. e) Chris Busby asked where the latest MOD mortality figures for Gulf War veterans could be found. Brigid Rodgers stated that these could be found in Hansard. The Secretary undertook to circulate the latest figures. <u>Action 7.9. Secretary to circulate mortality figures.</u>	Secretary (15/11/02)
7.	<u>Statement of Requirement for Main Contract</u> a) The Secretary had circulated a draft version of this paper some ago. No comments had been received. The following relevant topics were discussed: <u>Number of Samples</u> b) The SOR in its current version stated that an initial contract would be placed for the testing of 500 samples. As up to three contracts were likely to be placed, this meant that the initial contracts would cover the testing of up to 1500 samples. It was stressed that this was just an initial estimate to give a basis for contractors to price their bids. The contracts would be extended as required to allow for further testing- all Gulf and Balkan veterans who wish to have a test will be able to have one. c) Jim Glennon expressed concern that the MOD might try to influence the findings of the testing programme by encouraging a large number of veterans with no exposure to DU to be tested, thereby diluting the proportion that tested positive. The Chairman pointed out that this was a voluntary testing programme, not a research study, and that any gulf or Balkan veteran would be eligible for a test. The Chairman also noted that in research studies, information would be collected about participants' potential sources of exposure to DU. This would be taken into account in interpreting the distribution of exposures. <u>Security of samples</u> d) David Lewis again stressed the importance of sample security. <u>Size of samples</u> e) The Chairman stated that, initially, 24-hour samples would be obtained as	

	some veterans were unlikely to be happy with anything else. Veterans could probably be sent a container in which to make the collection, and then return it in person to a regional centre. A questionnaire could be completed at that time giving details of potential exposures etc. f) The Chairman asked if there would be any particular risk of contamination associated with collecting samples in this way. Norman Green pointed out that any contamination was likely to be with natural uranium, which would not affect the measured DU levels. g) There was some discussion about when the acidification of the urine should be carried out. It was agreed that this would have to be done at the regional centre when the veteran returned the sample or in the laboratory to which the sample was then sent. <u>Creatinine</u> h) The Chairman stated that once the samples were at the laboratory a small aliquot would need to be sent away to be tested for creatinine. This test is considered to be routine and there are a large number of laboratories that could do this test. <u>Values to be reported</u> i) It was agreed that the values reported for each sample would need to include: • Total uranium concentration • U238/U235 ratio • U238/U236 ratio (if possible) • the uncertainties involved in the above measurements. <u>Laboratory Report</u> a) The Chairman questioned a reference in the draft SOR to a report that the laboratory would produce after every 500 tests. It was generally agreed that as well as the reports for each individual there needed to be a report on the aggregation of the results. This would be used to monitor the performance of the laboratory.	
8.	<u>Statement of Requirement for Health Provider Contract</u> a) It had previously been agreed that urine samples would be collected via regional centres. The Chairman proposed that there would need to be enough centres to ensure that those being tested would not have to travel unreasonable distances. Also, plans would have to be put in place to cater for those veterans who could not travel to the centres. This would ideally be done by a single organisation. b) The Secretary stated that he had produced a SOR for this contract but had not yet circulated this as the SOR for the pilot study was required more immediately. He undertook to revise the SOR for the Health Provider contract and circulate it. <u>Action 7.10. Secretary to revise and circulate SOR for Health Provider contract.</u> c) The Chairman outlined a proposed procedure for carrying out the testing, as had been detailed previously in Section 6c of the minutes of the 6th meeting.	Secretary (15/11/02)

9.	<u>Statement of Requirement for Background Study</u> a) The Chairman restated that the aim of the background study would be to assess the distribution of depleted and natural uranium excretion (if any) in people with no potential exposure to DU through military service or work in the nuclear industry. The study could also incorporate some assessment of whether the time of day that a urine sample is given affects the uranium measurement. b) The Secretary stated that he had also produced a draft of this SOR but had not yet circulated it for comments. He undertook to revise the draft and circulate to the Board. <u>Action 7.11. Secretary to revise and circulate SOR for background study.</u> c) Malcolm Hooper stressed that the study should take account of any known 'hot spots' of uranium in the environment. d) Malcolm Hooper again raised the question of DU in fireworks. David Lewis said that he had talked to a renowned expert in the field of fireworks who did not believe that DU had been used in fireworks. Malcolm Hooper pointed out that a considerable number of fireworks are imported. e) Jim Glennon pointed out that there might be other people with higher background DU levels such as aviators.	Secretary (15/11/02)
10.	<u>Information to GPs and Subjects</u> a) The Chairman stated that he was still working on the next draft of these documents. b) There was some discussion about whether any treatment for DU exposure was available. Malcolm Hooper mentioned possibility of chelation therapy. Gordon Paterson suggested that veterans with high exposure might benefit from periodic screening for certain diseases. c) Gordon Paterson suggested that the DUOB should consider how the results of tests would be interpreted when passed back to the individuals concerned. There was some lack of consensus on the implications of DU exposure for health. The advice given would therefore have to reflect the varying views of experts. d) Jim Glennon suggested that War Pensions Agency (now the Veterans' Agency) data could be used to establish the incidence of various diseases suffered by Gulf veterans. Malcolm Hooper also mentioned the Manchester and Kings College databases which he believed could provide additional data. Post meeting note: The VA do not have a database - they treat each case individually and do not collate data.	
11.	<u>Timescales</u> a) The timing of the screening programme is currently dependent on the second stage of the pilot exercise. A programme will be drawn up following the meeting of the three laboratories, when the timescale should be better known.	

12.	<u>Biological Monitoring Policy</u> a) Brigid Rodgers provided an introduction to an MOD Biological Monitoring Policy paper dated 23 August 2002 which had previously been circulated to DUOB members for comment. She stated that following the Minister's statement in January 2001 about the voluntary screening programme, there were two public consultation papers followed by two 'summary of responses' papers (all available on www.mod.uk). As well as the testing programme, these documents considered Biological Monitoring for current and future operations. The consultation process endorsed the implementation of biological monitoring. The policy would include technical details of the test to be carried out. In order to be as open as possible, the DUOB would be asked to comment on the technical aspects of the policy. The DUOB Terms Of Reference, which were agreed at the 2nd DUOB meeting include the following lines: ‘The Oversight Board will be invited to comment on: a. The development of biological monitoring tests to be used by the MOD for future operations where DU is used’ b) Brigid Rodgers explained that any exposures would be relatively recent. Hence the test required for biological monitoring in current and future operations need not be so sensitive as for the retrospective testing programme. c) Brigid Rodgers tabled a document summarising the comments received on the Biological Monitoring paper. She stated that some editorial comments had also been received and these had been taken on board. Most items discussed are covered in the summary document. However, the following sections detail additional discussions: <u>Levels 1,2 and 3</u> d) There was some debate over the relevance of the Royal Society categories of potential exposure. Brigid Rodgers explained that the MOD had extended the Royal Society's definition of Level 3 to include everyone in theatre. Those in Levels 1 and 2 would be encouraged to receive testing, but it also would be available for everyone in Level 3 who wanted to be tested. It was considered that these Levels were a useful way of categorising personnel and the actions required, and would allow those with the greatest potential for exposure to be treated as priority cases. e) Jim Glennon expressed concern about how Level 3s would know they were categorised as such and that DU had been used in theatre. Brigid Rodgers explained that if DU were used, all service personnel would be notified through their chain of command. Jim Glennon and Malcolm Hooper expressed the view that all personnel should be tested regardless of their category. It was pointed out that a test would be made available, that everyone would be offered a test and that you could not force people to take the test. f) Jim Glennon and Malcolm Hooper expressed reservations over the Royal Society categories, believing that they excluded certain personnel. There was, however, no consensus on how the levels should be altered. Further discussion confirmed that all personnel had been covered. Jim Glennon undertook to suggest changes to the categorisation. Other members of the DUOB including the Chairman and Gordon Paterson stated that the levels were a good way of prioritising exposed personnel	
-----	--	--

	g) The Chairman said he believed the proposals were a good way forward and showed that the MOD was committed to ensuring that, if DU were used in theatre, then the correct testing regime would be implemented and that it would make sense to test Levels 1 and 2 as a priority. <u>Timing of Sample Collection</u> h) Samples would be taken back at the home base within one year of potential exposure. Research to date indicated that any urinary excretion of uranium as a consequence of exposure would be relatively high over this period. Also, it might be impractical to take samples in theatre, and there would be a greater risk of contamination with sampling in theatre. Jim Glennon asked whether repeat sampling would be carried out. Ron Brown stated that re-testing would be carried out in accordance with statutory requirements. If a sample gave a high reading then a new sample would be sought straight away. Repeated sampling would then be considered on a case-by-case basis. <u>Isotopes 234 and 236</u> i) Brigid Rodgers stated that the MOD did not propose testing for U234 and U236 as part of the biological monitoring as the U238/U235 ratio is considered adequate as an index of exposure to DU, and there were concerns about delaying the testing while suitable methods for U234 and U236 are established. Malcolm Hooper expressed the view that it was necessary to establish the characteristics of the DU that had caused the potential contamination. However, it was not clear to other members what the purpose of this would be. <u>Way-ahead</u> j) Brigid Rodgers stated that she would re-formulate the paper and re-circulate it. The Chairman asked how this policy would be put into practice. Gordon Paterson expressed the view that it should be implemented as soon as possible bearing in the mind the potential for future operations in Iraq. Brigid Rodgers replied that the policy was already being implemented.	
13.	<u>Date of next meetings</u> a) The date of the next DUOB meeting was set for 9th January 2003. A prospective date for the following meeting is 11th March 2003. b)	
14.	<u>A.O.B.</u> a) Malcolm Hooper asked if members of the DUOB had seen the Dai Williams paper entitled 'Hazards of Suspected Uranium Weapons in the Proposed War on Iraq'. Post meeting note: This report is available at www.eoslifework.co.uk/u231.htm	

Distribution:

All members

All observers

Devolved Health Administrations

Annex A - DUOB Action List

<u>Action</u>	<u>Date placed</u>	<u>Action Date</u>	<u>Detail</u>	<u>Owner</u>	<u>Comments</u>
1.1	27/9/01	16/11/01	'Definitions of Terms' appendix to be drafted and circulated for comment	Lewis/ Calsteren	COMPLETE – Definitions attached to draft protocol distributed at 2 nd meeting
1.2	27/9/01	16/11/01	Nominations for toxicologist and radiation medicine experts to be sent to GVIU	All OB Members	COMPLETE – See actions 2.2, 2.3
1.3	27/9/01	26/10/01	CVs and declarations of interest to be sent to GVIU	All OB Members	Still awaiting Hooper (short)
1.4	27/9/01	12/10/01	Secretary to establish if payments can be made for Board members to attend meeting	Secretary	COMPLETE – Payments will be considered on an individual basis. Written justification must be forwarded by Board member to GVIU for consideration.
1.5	27/9/01	12/10/01	Secretary to create a claim form for expenses	Secretary	COMPLETE - Form distributed on 23/10/01
1.6	27/9/01	26/10/01	Secretary to distribute a copy of the press release to board members	Secretary	COMPLETE – Press release distributed on 23/10/01
1.7	27/9/01	Ongoing	Board members to write to GVIU with suggestions for further background reading	All OB Members	Ongoing
1.8	27/9/01	26/10/01	GVIU to obtain permission and distribute responses to the 2 nd consultation paper to Board Members	Secretary	COMPLETE – distributed by email on 13/11/01
1.9	27/9/01	26/10/01	GVIU to distribute list of email addresses	Secretary	COMPLETE – Distributed on 23/10/01
1.10	27/9/01	26/10/01	Board members to suggest suitable laboratories to GVIU	ALL OB Members	COMPLETE – 30/11/01
1.11	27/9/01	26/10/01	Secretary to arrange for invitation to express an interest in the 'pilot study' to be advertised in the relevant journals	Secretary	COMPLETE - Advert in MOD Contracts Bulletin on 21/11 and OJEC on 13/11/01
1.12	27/9/01	16/11/01	Produce and circulate draft protocol prior to next meeting	Lewis/ Calsteren	COMPLETE – 30/11/01
2.1	30/11/01	4/1/02	GVIU to send TOR to Minister for comment	Secretary	COMPLETE - Sent on 11/1/02. Minister has approved the TOR.
2.2	30/11/01	8/1/02	CVs for toxicologist to be sent to GVIU. GVIU to forward to Minister	Secretary	COMPLETE – Sent on 15/1/02
2.3	30/11/01	8/1/02	Suggestions for radiation medicine experts to be sent to GVIU	All	COMPLETE
2.4	30/11/01	8/1/02	GVIU to consult Royal College of Radiologists	Secretary	COMPLETE – RCR recommendation received on 24/1/02
2.5	30/11/01	12/12/01	GVIU to notify members of expressions of interest	Secretary	COMPLETE – emailed on 13/12/01
2.6	30/11/01	7/12/01	Draw up Statement Of Requirement for the sample preparation	Van Calsteren	COMPLETE – 1 st draft discussed at meeting with NEQAS on 18/12/01. Will be revised in discussion between LEWIS, van Calsteren and NEQAS
2.7	30/11/01	10/12/01	David Lewis to contact the preferred supplier of spiked samples (and other suppliers if required) to assess interest and costs	Lewis	COMPLETE
2.8	30/11/01	13/12/01	Arrange meeting with supplier of spiked samples	Lewis	COMPLETE – see 2.9 below

2.9	30/11/01	20/12/01	Subgroup to visit supplier	Coggon/ Lewis/ van C/ GVIU	COMPLETE – lab visited on 18/12/01
2.10	30/11/01	28/1/02	Nick Day to review protocol and proposed statistical methods	Day	Ongoing
2.11	30/11/01	21/12/01	David Lewis to redraft protocol for pilot study of analytical methods	Lewis	COMPLETE
2.12	30/11/01	21/12/01	David Lewis to draft the SOR for the urine testing in the pilot study, to be distributed to the OB by 21/12/01	Lewis	COMPLETE – ITT sent to NEQAS on 14/1/02
2.13	30/11/01	10/1/02	OB to comment on the SOR for urine testing by 12.00, 10 Jan 02	All	COMPLETE
2.14	30/11/01	28/1/02	Chairman to appraise MRC of the planned timetable for the development of the testing method	Chair	COMPLETE – Chairman talked to Catherine Moody of MRC
2.15	30/11/01	21/1/02	Chairman to produce paper for next meeting summarising the different types of epidemiological study that might be relevant	Chair	COMPLETE – Paper circulated on 11/1/02
2.16	30/11/01	21/1/02	GVIU to produce a paper on the options for a chain of custody of urine samples	Secretary	COMPLETE – Paper circulated on 25/1/02
2.17	30/11/01	28/1/02	GVIU to identify the position of MOD funding of regional centres	Secretary	COMPLETE – MOD will fund regional centres but the details of this need to be decided
2.18	30/11/01	28/1/02	NRPB to obtain advice on the feasibility of testing for DU in tissue samples obtained at autopsy	NRPB	COMPLETE – paper distributed on
2.19	30/11/01	14/1/01	GVIU to circulate Annexes A and D (on the current ICRP models and Organ Doses from intakes) from the Royal Society report	Secretary	COMPLETE – Circulated on 11/1/02
2.20	30/11/01	21/1/02	GVIU to provide Contracts Branch with the draft protocol in time for ITT issue on 31 Jan 02	Secretary	COMPLETE – ITT issued 26 th Feb 2002. Response date = 9 th April.
2.21	30/11/01	21/1/02	David Lewis/ van Calsteren to prepare a paper on laboratory methods	Lewis/ van Calsteren	Ongoing
2.22	30/11/01	7/12/01	GVIU to arrange a meeting between Chairman and US of S	Secretary	COMPLETE – Chairman met with US of S on 16/1/02
3.1	28/1/02	15/2/02	GVIU to distribute NRPB presentation	Secretary	COMPLETE – Sent out on 19/2/02
3.2	28/1/02	15/2/02	GVIU to seek permission and distribute Durakovic presentation to RS	Secretary	COMPLETE – Durakovic paper circulated
3.3	28/1/02	15/2/02	Brian Spratt to investigate if advance copies of urine excretion section of RS report can be made available to members of the Board	Spratt	COMPLETE – RS report published 12/3/02
3.4	28/1/02	N/A	GVIU to distribute part 2 of the RS report when available	Secretary	COMPLETE – Distributed by the RS
3.5	28/1/02	15/2/02	GVIU to contact proposed specialist in radiation medicine	Secretary	COMPLETE – Dr Spittle appointed to the OB
3.6	28/1/02	15/3/02	GVIU to produce a paper on requirements for main testing programme contract	Secretary	COMPLETE – Discussed at 4 th DUOB meeting

3.7	28/1/02	15/3/02	David Lewis to produce a paper on how laboratories can be judged against each other	Lewis	Ongoing
3.8	28/1/02	15/2/02	GVIU to circulate the McDiarmid paper	Secretary	COMPLETE – Distributed on 19/2/02
4.1	18/4/02	17/6/02	Secretary to improve content and presentation of DUOB website	Secretary	COMPLETE
4.2	18/4/02	7/6/02	OB Members to provide comments on DUOB website to Secretary	All	COMPLETE
4.3	18/4/02	17/5/02	Secretary to contact RS re. distribution of RS paper	Secretary	COMPLETE – Missing reports distributed
4.4	18/4/02	16/4/02	Secretary to circulate the MOD research proposals	Secretary	COMPLETE – Sent 26/4/02
4.5		17/5/02	Secretary to edit and distribute protocol document	Secretary	COMPLETE – sent by email 20/5/02
4.6	18/4/02	ASAP	Secretary to arrange for the two bidders to requote for pilot exercise	Secretary	COMPLETE
4.7	18/4/02	26/4/02	Secretary to arrange for pilot study contracts to be placed	Secretary	COMPLETE - 5 contracts placed on 29/4/02
4.8	18/4/02	26/4/02	PvC to visit NEQAS in the week beginning 22/4	Van Calsteren	COMPLETE - Overtaken by events
4.9	18/4/02	17/6/02	Secretary to draft advert for main testing contract for approval for the DUOB	Secretary	COMPLETE – Draft circulated prior to 5 th DUOB meeting
4.10	18/4/02	11/6/02	Muir Gray to produce a paper on sample collection/provision of advice	Muir Gray	COMPLETE - Papers distributed on 17/6/02
4.11	18/4/02	17/5/02	Chairman to produce a draft of information to be given to GPs	Chair	COMPLETE – Circulated by email on 24/4/02
4.12	18/4/02	17/5/02	RBL reps to produce a draft of advance advice to veterans and advice once results are known	Green/Gilmore	COMPLETE – Circulated by email on 20/5/02
4.13	18/4/02	17/5/02	Secretary to circulate the McDiarmid paper on spot samples	Secretary	COMPLETE – distributed on 16/7/02
4.14	18/4/02	17/5/02	Suggestions for ways of communicating the availability of voluntary testing	All	COMPLETE
4.15	18/4/02	17/5/02	Chairman to write to MRC re. epidemiological studies	Chair	COMPLETE – letter sent on 24/5/02
4.16	18/4/02	17/5/02	Chairman to discuss research with LSHTM	Chair	COMPLETE – discussed following 4 th meeting
4.17	18/4/02	17/5/02	GVIU to report on MOD research into health effects of DU	GVIU	COMPLETE – post meeting note in minutes of 4 th meeting
4.18	18/4/02	17/5/02	Secretary to distribute new schedule	Secretary	COMPLETE – circulated by email on 22/5/02
4.19	18/4/02	17/6/02	Muir Gray to produce report on the potential for screening for myeloma ...	Muir Gray	COMPLETE – tabled at meeting on 17/6/02
4.20	18/4/02	17/5/02	GVIU to check if abdominal ultrasound is a standard procedure at the MAP	GVIU	COMPLETE – post meeting note in minutes of 4 th mtg
4.21	18/4/02	17/5/02	Secretary to circulate web address of the UNEP report	Secretary	COMPLETE – post meeting note in minutes of 4 th mtg
5.1	17/6/02	24/7/02	Secretary to collate and distribute all information regarding Italian peacekeeper discussion	Secretary	COMPLETE – Information circulated prior to 7 th meeting
5.2	17/6/02	24/7/02	Chris Busby to write a short introduction to the Italian peacekeepers information	Chris Busby	COMPLETE – tabled at DUOB mtg on 24/7/02
5.3	17/6/02	24/7/02	Secretary to check on ultrasound diagnoses of renal cancer at MAP	Secretary	COMPLETE – details given at DUOB mtg on 24/7/02
5.4	17/6/02	28/6/02	Peter van Calsteren to obtain uranium and zinc concentration data from NEQAS	PvC	COMPLETE
5.5	17/6/02	28/6/02	Secretary to revise and distribute draft	Secretary	COMPLETE

			advertisement		
5.6	17/6/02	24/7/02	Secretary to redraft SOR and distribute	Secretary	COMPLETE – new draft circulated on 28/8/02
5.7	17/6/02	24/7/02	Len Levy to investigate if creatinine can be measured in acidified urine	Len Levy	COMPLETE - comments circulated by email on 26/7/02
5.8	17/6/02	24/7/02	Muir Gray to produce ‘pathway’ for testing process	Muir Gray	Ongoing
5.9	17/6/02	24/7/02	Chris Busby to write paper on sample security	Chris Busby	COMPLETE – tabled at DUOB meeting on 24/7/02
5.10	17/6/02	24/7/02	Chairman to provide a more detailed paper on information for GPs	Chair	Ongoing
5.11	17/6/02	24/7/02	Chairman to produce next draft of ‘information to veterans’	Chair	Ongoing
5.12	17/6/02	24/7/02	Secretary to obtain a copy of the MAP questions	Secretary	COMPLETE – MAP questions sent to Malcolm Hooper prior to 24/7 mtg
5.13	17/6/02	24/7/02	Malcolm Hooper to draft screening programme questionnaire	Malcolm Hooper	COMPLETE – Questionnaire tabled at DUOB meeting on 24/7/02
6.1	24/7/02	2/8/02	Secretary to distribute full protocol to DUOB	Secretary	COMPLETE - distributed by email on 25/7/02
6.2	24/7/02	9/8/02	NEQAS to provide full report on pilot study	Andrew Taylor	COMPLETE – distributed on 12/8/02
6.3	24/7/02	23/8/02	Secretary to amend minutes of 5 th DUOB and circulate	Secretary	COMPLETE
6.4	24/7/02	21/10/02	Malcolm Hooper to provide list of Professor Schott’s relevant publications	Malcolm Hooper	Ongoing
6.5	24/7/02	30/9/02	George Etherington to investigate NRPB work on maximum size particle that can pass through kidney	George Etherington	COMPLETE – Paper circulated by email on 2/10/02
6.6	24/7/02	20/9/02	DUOB members to send Malcolm Hooper suggestions for any further amendments to the questionnaire	All	Ongoing
6.7	24/7/02	11/10/02	Malcolm Hooper to produce 2 nd draft of questionnaire	Malcolm Hooper	Ongoing
6.8	24/7/02	9/9/02	Members to send comments on Chris Busby’s ‘Security’ paper to Secretary	All	Ongoing
6.9	24/7/02	30/9/02	Secretary to provide SOR for Health Service Provider for urine testing programme	Secretary	Ongoing
6.10	24/7/02	16/9/02	DUOB members to write to Secretary with suggestions for a body to carry out the ‘Background’ study	All	Ongoing
6.11	24/7/02	30/9/02	Secretary to provide SOR for ‘Background’ study	Secretary	Ongoing
6.12	24/7/02	31/7/02	Chairman to inform Medical Research Council of delays in establishment of screening programme	Chair	COMPLETE – letter sent on 25/7/02
6.13	24/7/02	6/9/02	Secretary to ascertain whether a limited AMS study was feasible in terms of laboratory availability and cost	Secretary	Ongoing