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DRAFT APPROVED BY PROFESSOR COGGON

MINUTES OF THE EIGHTEENTH DEPLETED URANIUM OVERSIGHT BOARD MEETING ON NOVEMBER 15TH 2004

Present:			
Board:	Professor David Coggon	MRC	Chair
	Surg Cdre Nick Baldock	RN	
	Mr Ron Brown	DRPS	
	Dr Chris Busby	LLRC	
	Dr George Etherington	NRPB	
	Dr Gordon Paterson	BRC	
	Dr Margaret Spittle	MH	
	Professor Brian Spratt	RS	
	Charles Williams	*VPU*	
	Tony Field	*VPU*	*Project Manager* *Acting Secretary*
Observers:	Dr Chris Morgan	VPU DD/DU	
	Wg Cdr John Aitken	DMSD	
	Brig John Graham	DMSD	
Apologies:			
	Maj Gen (Retd.) R P Craig	RBL	
	Professor Ian Gilmore	RCP	
	Dr Gideon Henderson	Oxford University	
	Dr Len Levy	MRC IEH	
	Dan King	*VPU*	*Secretary*
Not Present:	Dr David Lewis	INM	
	Prof Malcolm Hooper		

Item	Discussion and decisions	Action by
1.	**Introductions** The chairman welcomed Brigadier John Graham, who had succeeded Air Commodore Simon Dougherty and was attending his first DUOB meeting as MoD observer.	
2.	**Minutes of the previous meeting** Mr Brown believed he had been given an action to provide information on background rates of chromosomal aberration. This action was not included in the minutes, but had in any case been completed.	
3.	**Matters arising** i) Action 15.3: Dose calculation paper Dr Etherington said the technical document on dose calculation was now available and had been circulated. ii) Action 15.11: Review of laboratories' quality control arrangements The paper had been completed but not yet received by the secretary. iii) Action 16.2: Comparison of creatinine ratios in 24-hour and spot samples Professor Coggon had agreed to correlate uranium to creatinine ratios for spot samples with estimates of 24 hour urinary excretion for the same subjects. This action was not immediately critical to the business of the DUOB and remained ongoing. iv) Action 17.1: Inclusion of geographical information on results database The administration contractor had agreed to mark each result with a code signifying the clinic from which the sample had been sent to indicate (broadly) its region of origin. The Board did not consider this could lead to the identification of individual participants. v) Action 17.2: Documentation of uncertainty estimation methods Neither laboratory had yet submitted its detailed procedure in writing to the project manager.	Dr Lewis Prof Coggon Proj. man.
4.	**Updates on Testing Programme Contracts** Programme The chairman said that the DUOB Press Release had gone out on September 22nd. An MoD Press Release had been made available at the same time. This had been followed on September 23rd by the advertisement in "The Sun" launching the main testing programme. This had attracted some media interest. Most of the enquiries he had received related to the limits of detection and the time after exposure at which DU might still be found in urine. Dr Morgan said that a considerable proportion of the test applications received so far were from serving personnel. Dr Paterson asked that copies of relevant press releases and newspaper articles, including the Minister's statement, be placed on file and made available to the Board. **Action 18.1: Copies of all public statements and press coverage to be obtained and filed** The chairman felt that sufficient public awareness had been generated and there was no immediate need for further publicity at this stage. He suggested that anonymised, aggregate results be posted on the DUOB website as soon as a reasonable number of analyses had been completed. Mr Williams reported that up to November 12th VPU had issued a total of 357 test application forms. The number of completed applications received was 275, of which 229 had so far been	Secretary

	approved as eligible and forwarded to the administration contractor for action. The few applicants who did not meet the eligibility criteria were being offered the opportunity to participate at their own expense at a charge of £650. The chairman said that a meeting hosted by the administration contractor on September 20th had proved very useful. Both he and Dr Paterson said they had been impressed by the professionalism of the contractor, demonstrated by the care with which procedures had been set up and documented. The project manager had distributed a record of the meeting to all attendees. The chairman asked for this to be copied to all members of the Board. **Action 18.2: Record of September 20th meeting to be sent to all DUOB members** The procedure for handling the samples received at the clinics was then discussed. Professor Coggon said that each sample was placed in a uniquely numbered bag which was then sealed in the presence of the participant. The code number was at least six digits. All the bags were transparent, so it would be apparent if a sample had been damaged or tampered with. When a sample arrived at the receiving laboratory, its volume was noted, a sub-sample taken for creatinine analysis, and an aliquot removed for uranium analysis. The remaining sample, in its original bottle, would then be rebagged (using the same identification number) and passed to the second laboratory for duplicate uranium analysis if required. Regional Clinics The chairman reported that the regional clinics in London, Stockton, Bristol and Glasgow were now being supplemented by additional facilities in Manchester and Sheffield. There had been no serious problems thus far in the operation of the main testing programme. Mr Williams said that the London clinic was initially working to a 6-month contract with a maximum of 300 test participants. The hospital in Sheffield required 4 weeks' notice to set up a DU test clinic and would then see up to ten participants in one day. The other clinics had been engaged without explicit limits on numbers, and were charging according to usage. Dr Paterson asked about the procedure for test applicants in Northern Ireland. Since it had not proved possible to set up a clinic there, any applicants from the area would be offered either an appointment at the most suitable clinic in Britain or a home visit. Personnel serving overseas were being invited to attend a clinic when they were in the UK. It was felt that the six clinics provided adequate geographical coverage and were sufficient to cope with the expected level of demand. The question of an independent third party to hold copies of the completed questionnaires was discussed. Provision had been made for this, but as no third party had yet been agreed, the copies were for the moment being held by the administrator. Professor Coggon said he would write to Professor Hooper and Maj Gen Craig for a nomination. **Action 18.3: Chairman to seek a nomination for independent third party** Laboratories The first samples from the main testing programme had begun to arrive at the laboratories for analysis. Results were expected from early January. Initially all data would be referred to the DUOB for monitoring and the formulation of advice on any test results that were not clearly negative, but over time these functions would increasingly be taken over by the administration contractor. The Board would continue to see and rule on all results that were unclear or unusual. Mr Williams pointed out that the analytical throughput capacity of the contracted laboratories was strictly limited, and therefore the current policy of analysing all samples in duplicate could not be sustained indefinitely. After some discussion, the Board decided that the existing arrangements should continue for the first one hundred samples. Thereafter the administration contractor was to advise the two laboratories which of them (either or both) should analyse a given sample. Samples would still be forwarded from the receiving laboratory to the other, but at a laboratory where testing was not immediately required, would simply be stored. The appropriate level of duplication would periodically be set by the DUOB in the light of overall demand. Dr Busby said that some in the veterans' community were suspicious of the laboratory to which all samples were initially being sent. Because this system seemed to provide the possibility of undetected tampering, he would prefer a more symmetrical arrangement in which approximately	Proj. man. Chairman

	half the samples were sent first to the other laboratory. Mr Williams said that any substantive change in what the relevant parties were doing would require formal amendments to their contracts. He was asked to seek the views of the laboratories and administrator on the practicality of a symmetrical sample handling scheme and report back to the Board. **<u>Action 18.4: Project manager to investigate changing the sample routing arrangements</u>** Mr Brown said that he felt any suspicion of laboratory 'A' was quite unjustified. Although the origins of the laboratory lay in the nuclear industry, it had undergone two changes of ownership and much turnover of staff since that time, and now operated in a purely commercial fashion. He pointed out that Greenpeace had engaged laboratory 'A' for an independent assessment of dioxin contamination. Mr Williams said that his only concern about the laboratory was its ability to process the number of samples now being received within the time allowed. It had been agreed with both labs that results would be provided within 3 months of sample receipt, and this timescale was noted in the advisory factsheet sent to all test applicants. The chairman said that if for any reason it was not going to be possible to issue the result in time, a holding letter must be sent to the participant(s) concerned telling them why there was a delay and how much longer they would have to wait. This letter was to be written by the administration contractor. Dr Busby asked exactly how the samples were transported between the laboratories. Mr Williams undertook to check current practice. **<u>Action 18.5: Project manager to check inter-laboratory transport arrangement</u>** *[Post-meeting note: The samples are placed in a cool box and despatched by courier.]* <u>Feedback to Participants</u> Dr Etherington had prepared an information paper, designed for a lay readership, that explained the estimation of radiation exposures from given levels of uranium isotopes. The Board agreed it would be a useful document for GPs/Medical Officers and for some test participants. It was suggested that the paper be retitled "Information for Veterans, General Practitioners and Medical Advisors" in order to encourage participants to speak with their doctors. It was also thought that the paper would help journalists, some of whom had already asked for further information, to understand the test more fully. The Board considered that sufficient written material was now available. Dr Etherington's paper could be sent out to participants with their results letter. Dr Busby proposed an alternative risk model based on research post-Chernobyl, where children had received doses of 50µSv - 100µSv. Dr Busby said that "dose" was perhaps a misleading term to use with internalised sources as it related to energy per unit mass, whereas a solid particle inside the body would release radiation only to cells in its immediate vicinity – not to the whole body. Professor Coggon felt that this point had been covered in the Royal Society report; in any case, a cell exposed repeatedly to radiation at close quarters would tend to die rather than be transformed. There was some discussion of risk models and factors. Mr Brown, in response to a point made by Dr Busby, commented that radiation doses in uranium mines arose largely from exposure to radon gas, which could act as a particulate source through adsorption of radon progeny onto inhaled dust particles. The majority view was that the ICRP model remained appropriate. Dr Etherington was asked to add a caveated footnote to his paper explaining the implications of the (majority) CERRIE report. A draft footnote was to be emailed to Board members, who would approve it out of committee if there was no major disagreement. **<u>Action 18.7: Footnote on the CERRIE report to be drafted and circulated</u>** Some minor alterations to Dr Etherington's paper were agreed in subsequent discussions. The Board went on to consider the solubility of DU and its impact products. The point had been raised that if an inhaled particle were wholly insoluble, it would make no contribution to the uranium excreted in urine. It was suggested that in this case a negative urine test result might not necessarily mean that there had been no significant intake. However, it was pointed out that part of an inhaled dose of DU will be soluble, and that part of this soluble component will be deposited in bone structures and then gradually released over time through the normal processes of bone	Proj. man. Proj. man. Dr Ether'ton

	metabolism. This ensures that small but analysable quantities of DU would be present in the urine even if any particles remaining in the lung were totally insoluble (which in itself seems unlikely). The recently published results of the US "Capstone" trials indicated that the proportion of highly insoluble DU impact products varied in the range 58-99%; however, even the least soluble fraction would dissolve slowly in lung fluids. The results also showed that the intake of DU under battlefield conditions was unlikely to be significant for health. It was uncertain whether a DU particle that became encapsulated inside the body would continue to leach uranium into surrounding tissues; but it was well established that DU in shrapnel wounds steadily dissolved and remained detectable in the urine for as long as the reservoir persisted. The DUOB confirmed that the daily uranium excretion of each test participant would be calculated as the arithmetic mean of the concentrations reported by each of the two laboratories, multiplied by the volume of the 24-hour sample. A correction of 200 ml would be added to the recorded volume for each void that had gone uncollected. Standard 'negative' letters would be sent by the administrator only where the daily uranium excretion was below 20 ng. Mr Williams mentioned that results available thus far from the civilian normative values preliminary study indicated background urinary uranium levels consistent with those found in the pilot exercise: typically a few nanogrammes per day. Mr Williams reported that the service contract with the specialist medical advisor would take effect at the beginning of January 2005. <u>Quality Assurance</u> Concerns were expressed that the acidification step involved in preparation of the 'spiked' urine samples would make them readily distinguishable from the veterans' samples when received by the analysing laboratory. The chairman asked Mr Williams to seek Dr Lewis' views on this point and then if necessary discuss a remedy with the prospective contractor. If Dr Lewis was happy to proceed, the contract for supply of the 'spiked' samples could then be placed. **<u>Action 18.8: Dr Lewis to be consulted over the implications of sample acidification</u>** The chairman felt that it would be timely to send a programme update to all involved in its operation, including the analytical laboratories, the clinics, and the prospective medical advisor. This should contain general information such as the number of applications received, the expected forward timetable, and the use of 'spiked' samples for blind quality checking. **<u>Action 18.9: Programme update to be drafted and distributed</u>**	Proj. man. Proj. man.
5.	**<u>Normative values preliminary study</u>** Mr Williams reported that he had received all data from the duplicate analysis of the 24-hour urine samples from laboratory 'B'. So far only partial results had arrived from the primary analysis of the 24-hour and all spot samples by laboratory 'A'. The chairman said that the DUOB would compare the data from the two labs as soon as they were fully available. The need for and design of a full nationwide normative values study could then be considered. Dr Busby suggested that evidence of enriched uranium isotope ratios might invalidate the current DUOB method for assessing the presence or absence of DU. Dr Busby asked to be given (in anonymous form) the raw data accumulated by the MoD from its biological monitoring programme. Dr Morgan said that he had no objection to the release of this information. **<u>Action 18.10: Anonymous biological monitoring results to be provided to Dr Busby</u>**	Mr Brown
6.	**<u>Timescales</u>** This item had been covered elsewhere in the agenda.	
7.	**<u>DU Background and Scientific Issues</u>** Three items were mentioned: the CERRIE Report; reassessment of doses from transuranics in DU by NRPB; and the Capstone Report.	

8.	**Date of Next meeting** It was agreed that the next meeting would be held on Monday February 21st 2005.	
9.	**Any Other Business** There was no other business.	

Distribution:

All members

All observers