Draft HPA advice on the use of Prussian Blue (ferric hexacyanoferrate) for decorporation of radiocaesium.

Responses to the consultation received June-September 2010

Responder	Response from consultee	HPA response
Cumbria Fire and Rescue Service Justin Johnston Head of Service Delivery Station Road Cockermouth Cumbria CA13 9PR Tel: 01900 820250 Tel: 07776 296419 justin.johnston@cumbriacc.gov.uk	This is a very useful and comprehensive document. Although lengthy, it is very easy to read and digest. The document points out where the health benefits kick-in, in terms of absorbed dosage. And this appears to be sensibly set at 30mSv. Given this will be above our normal threshold it would only be prescribed following an unmonitored received dosage, such as a CBRN event or as an 'Informed Volunteer' at a regular radiation incident. The use of Prussian Blue appears to give significant advantages in the lowering of received dose by speeding up its exit. The side effects appear to be minimal (constipation, stool colour) but may adversely effect people with existing conditions (but this should be picked up in the assessment process). I think it may benefit section 3.2 to note the FRS capability for radiation monitoring of cesium, but this is not essential. Please feel free to contact me direct on any issue. 23 June 2010	Amendments have been made to take account of these comments.

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Department of Health S W Conney Head, Radiation Policy Legislation and Environmental Hazards Department of Health Area 520, Wellington House, SE1 8UB Stuart.Conney@dh.gsi.gov.uk	No comments on the main document, but a couple on the appendices On B, should there be different leaflets for different levels of contamination? These could be seen as a knee-jerk reaction and personal (1:1) advice may be better - at least in the first instance. The level of skill needed to interpret monitor readings may make these of little use and do more harm than good if given out by untrained staff - not clear who the triage / monitoring / treatment algorithm aimed at. On D, no mention of whole body monitoring 5 August 2010	The leaflet in appendix B is draft and generic. It would need to be amended to suit the incident, such considerations should happen then. The algorithm is intended for professional use, therefore Appendix B renamed to *Draft Treatment Algorithm and Patient Information Leaflets* Appx D renamed to be “Handheld equipment” Section 3.2.3 para 3 reworded to say “the types of handheld radiation monitoring equipment”
Radiation E mergency A ssistance Center/Training Site REAC/TS Albert L Wiley,Jr, MD, PhD Director,REAC/TS Director,WHO Collaborating Center at Oak Ridge Medical/Technical Director of Radiation Emergency Medicine ORAU National Security and Emergency Management Program albert.wiley@orise.orau.gov	I think it is an accurate, clear and succinct document. I did, however, have a very few comments/suggestions: 1) I have some concern about the discussion of breast feeding by Cs137 contaminated mothers , In page 8 (second paragraph), the comment is made that for mothers who received less than the 30mSv CED (commited effective dose),the benefits of breast feeding are presumed to outweigh the radiation risk so that the mother can be advised that there is no need to discontinue breast -feeding. Even if the assumption that the infant would receive only 30% of the CED(committed effective dose) of the mother is true (estimated CED levels are not that accurate due to modeling uncertainties) ; there are also other uncertainties regarding the radiation sensitivity and the dosimetry of the nursing baby (ie, how old is the infant—the younger, the more sensitive, how much time is the baby held by the baby and exposed to the Cs137 gammas, is the baby being contaminated by Cs137 being transported through the mother's skin). The last sentence in the third paragraph "it is recommended that doses and risks to the infant should be individually assessed to inform	The statement in the report that the dose to the infant is no greater than about 30% of the dose to the mother is not an assumption; rather it is one of the results of a detailed study of the topic carried out by the HPA for HSE. The reference to the study is included in the References section. The text in the 3rd sentence of section 6.5.3 has been amended to note this. HPA believe that the milk dose assessment is no more uncertain than many other internal dosimetry assessments. It may be noted that, in comparison to the maternal milk pathway, the contribution to the total dose to the infant of external irradiation from the mother is small (section 6.7.1.2), as would be the contribution from transfer of caesium through the skin. Therefore the text has not been changed. An individual-specific assessment would probably result in a more accurate assessment of dose and risk than the generic assessment that underlies the use of a 30 mSv guidance level below which nursing mothers would be advised that there is no need to

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	the mother on whether to stop breast feeding " may be, I think, the safest advice for ALL estimated maternal CED levels ,for this particular scenario. 2) The first paragraph, second sentence of page 50 states: " .Treatment for these cases --" May I suggest it be reworded as: "The US FDA suggests that treatment for these cases should be started---", since REAC/TS has NO authority to recommend and drug or treatment .(See FDA web site) But ,again ,I think this is an excellent reference document ,and that it will be of value to all who use it. 21 August 2010	stop breast feeding. However, in the event of an emergency with large numbers of potentially-affected people, it is very important that generic (but authoritative) advice is available, since carrying out individual assessments may not be feasible given available resources. A sentence to note this has been added at 6.5.3
Scottish Environmental Protection Agency (SEPA) Janice Milne, Head of Environmental Policy SEPA Consult@sepa.org.uk Erskine Court, Castle Business Park, Stirling FK9 4TR	Thank you for providing the Scottish Environment Protection Agency (SEPA) with the opportunity to comment on the consultation document. SEPA is supportive of the potential use of Prussian Blue for decorporation of radiocaesium in that it provides another potential tool to mitigate the potential radiological effects of ingestion of radiocaesium in the body. The report states that following the administration of Prussian Blue the bulk of the excretion of radiocaesium from the body will enter the foul waste water system and a full flush is to be carried out after each use. As localised blockages in the foul water system can sometimes occur, it may be worthwhile considering some guidance on extra irrigation of the foul water system to further dilute the contaminated water. It is suggested that this extra guidance could be inserted in section 6.8.1.1 'Urine and faeces'. Together with further diluting the contaminated water at the point of entry, a second flush will also move the contaminated water further into the foul water system allowing even greater dilution and thus pose less of a hazard, should any blockage occur. Dependent upon the numbers of people treated and the radiological activities entering the foul water system it may also be worthwhile providing some commentary on potential sludge to land transfer where this occurs. For public assurance purposes, it is suggested that a generic dose assessment is undertaken on the potential doses to sewage workers	HPA consider that including a 'generic dose assessment ..... on the potential doses to sewage workers resulting from the administration of Prussian Blue to patients for a range of ingested activities' is unhelpful because of the wide range of possible doses which would be dependent on the number of patients being treated, their contamination levels and their location. This issue should be considered in a hospital and case specific context by the hospital RPA. To assist with this a reference to the potential usefulness of Generalised Derived Constraints (GDCs) in para 6.7.1.1. HPA have also added "flush twice " to the guidance a 6.7.1.1 and in the patient information leaflets.

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	resulting from the administration of Prussian Blue to patients for a range of ingested activities. As a public body committed to openness and transparency, SEPA feels it is appropriate that this response be placed on the public record. If you require further clarification on any aspect of this correspondence, please contact Paul Dale, Principal Policy Officer, SEPA Corporate Office. 3 September 2010	
Ministry of Defence Judy Jarvis, Surgeon General's Department DBR-SSDC-3b Safety3b@mod.uk	A very comprehensive document. Covers all the aspects of use of Prussian Blue that it should. No further comments. Thank you for the opportunity to comment. 22 September 2010	No HPA response needed but thank you for those kind comments.
Canadian Defence R & D Dr Diana Wilkinson Defence Scientist / scientifique de la Défense Defence R & D Canada / R & D pour la défense Canada 3701 Carling Avenue / 3701, avenue Carling Ottawa, ON K1A 0Z4 +1(613) 998-5995 / Fax: +1 (613) 998-4560 diana.wilkinson@drdc-rddc.gc.ca www.ottawa.drdc-rddc.gc.ca	Annotated version of the document supplied with many suggestions for minor amendments. 21 September 2010	These detailed comments were noted and several amendments made to clarify the text as suggested by the responder.