

## NATIONAL DOSE ASSESSMENT WORKING GROUP

### PAPER 8-04: REPORT BACK FROM SUB-GROUP ON UNCERTAINTY AND VARIABILITY IN DOSE ASSESSMENTS

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#### Progress Report from the NDAWG Sub-Group on Uncertainty and Variability

The sub group met in early October to complete its second report "Reviewing Non Nuclear Licensed Site Radiation Dose Assessment Taking Into Account Uncertainty". This report has been tabled at this NDAWG meeting. At the sub-group meeting in October members agreed that the group had made as much progress in meeting its terms of reference as it could and that the item in the Terms of Reference related to communication of the results of assessments should be passed to the proposed sub-group on communications.

A table is given below summarising the progress of the sub-group in meeting its Term of Reference.

<b>Terms of Reference</b>	<b>Progress Against Term of Reference</b>
Review and comment on FSA's use of 'possible' and 'probable' dose.	Has been dealt with at early meetings of the working group and discussed at full NDAWG meetings
Consider the extent to which assessments should be probabilistic, i.e. a range of doses is estimated rather than a single value	Dealt with in the first report of the working group "An Overview of Uncertainty in Radiological Assessments" and the second report "Reviewing Non Nuclear Licensed Site Radiation Dose Assessments Taking Into Account Uncertainty"
Consider issues and studies relating to uncertainty and variability in dose assessments, including the availability of input data	Dealt with in the first report of the working group "An Overview of Uncertainty in Radiological Assessments" and the second report "Reviewing Non Nuclear

	<p>Licensed Site Radiation Dose Assessments Taking Into Account Uncertainty"</p>
<p>Consider issues relating to compliance with dose limits and constraints when probabilistic assessments are carried out.</p>	<p>Dealt with in the first report of the working group "An Overview of Uncertainty in Radiological Assessments" and the second report "Reviewing Non Nuclear Licensed Site Radiation Dose Assessments Taking Into Account Uncertainty". The 'Principles Document' also includes material relevant to this issue.</p>
<p>Consider how probabilistic results can be presented to the public</p>	<p>Will be dealt with by the new working group on communications of the results of assessments. Communication of results to regulators and policy makers should also be included in the ToR of this group.</p>

## Record of 6<sup>th</sup> meeting

6<sup>th</sup> meeting held on 5 October 2005, Aviation House London.

### Present

Chair	David Webbe-Wood	FSA
Regulators/agencies	David Brazier	EA
	Ray Kowe	HPA
	Jane Simmonds	HPA
Specialists/NGOs	Marcus Grzechnik	CEFAS
	Mike Thorne	Consultant

### ***1. Minutes of previous meeting 23 February 2005***

The minutes were agreed, all actions have been completed.

### ***2. Matters arising***

There were no matters arising.

### ***3. Finalisation of the second report 'Reviewing Non Nuclear Licensed Site Radiation Dose Assessments Taking Into Account Uncertainty'***

David Webbe-Wood has incorporated comments from members of the subgroup, and has received a summary of a recent assessment that used W63 for the Weston Park hospital complex, Sheffield from Cathy Griffiths which will form annex B. The purpose of today's meeting is to finalise the document. The main (non-formatting) changes to the text were listed as following:

#### *Introduction*

Paragraph 3, sentence 3 – change 'is given' to 'is given on'

#### *Section 2*

Paragraph 1 - the definition of uncertainty in paper 1 of the subgroup should be reiterated near the start of the paragraph.

Paragraph 1, last sentence – change 'alternative' to 'less'

#### *Section 2.1*

Paragraph 1, sentence 5 – change 'models used and in the' to 'models used including the'

Paragraph 1, last sentence – change 'would not be unacceptable' to 'would be acceptable'

*Section 2.2*

Paragraph 1, sentence 2 - change 'carried out on the impact' to 'carried out on the effect'

Paragraph 3, sentence 2 – change 'upper bound estimates' to 'upper bound calculations'

Paragraph 3, sentence 3 – change 'will be above the LoD' to 'will be below or well below the LoD' and move bracket to end of sentence.

Paragraph 3, sentence 4 – spelling of 'estimate'

Last paragraph in square brackets - should be reworded to 'Care must be taken when using empirical relationships based on monitoring data that environmental conditions have not changed since the monitoring was carried out'

*Section 2.3*

Paragraph 1, sentence 4 – change 'For this reason,' to 'For this reason even'

Paragraph 1, sentence 4 – change 'are included in' to 'are included in one presentation of'

Paragraph 2, sentence 1 – change 'to a number of significant figure' to 'to a specified number of significant figures'

Paragraph 2, sentence 2 – change 'an undue level of accuracy and care should be taken to ensure that it is made explicit that this is not the case' to 'false precision'

*Section 2.7*

Sentence 1 – change 'There may be other' to 'There are various'

*Section 3*

Paragraph 1, sentences 1 and 2 – change 'assessment<sup>1,6</sup>, As illustrated by the flowchart in figure1' to 'assessment<sup>1,6</sup> as illustrated by the flowchart in Figure1'

Paragraph 1, sentence 6 – change 'the extent to which doses may have' to 'the extent to which doses have'

*Section 3.2*

Sentence 2 – change 'specific radionuclides' to 'particular radionuclides'

Sentence 3 – change 'estimated based on the operations at the plant' to 'estimate based on the operations at the facility'

Sentence 4 – change 'discharge is of the radionuclide' to 'discharge comprises of the radionuclide'

Sentence 6 – change 'Studies, for example for the river' to 'Studies of, for example of the River'

*Section 3.3*

Sentence 4 – change 'literature on the model' to 'literature to determine the pedigree and intended application of the model.' David Webbe-Woode to reword the remainder of the sentence beginning 'being used...'

Sentence 6 – change '(such as molybdenum)' to '(such as irridium)'

Sentence 10 – delete 'e.g. transfer factors to fish based on water concentrations may not be adequate for representing direct transfers from bottom sediment for benthic species'

*Section 3.4*

Sentence 2 – change 'Changing the location can' to 'Changing the location relative to the source can'

*Section 3.5*

Sentence 6 – change 'sub-committee' to 'subgroup'

*Section 3.6*

Sentence 1 – change 'consideration of any' to 'consideration in any'

Sentence 3 – change 'sub-committee' to 'subgroup'

*Section 3.7*

Last sentence – change 'or a one year old child' to 'or children of various ages'

*Section 3.8*

Last sentence – change 'and so it may not' 'and so it is not'

*Last paragraph*

Sentence 1 – change 'As part' to 'In summary, as part'

Penultimate sentence – change 'carried out if the doses are felt to be particularly uncertain and it is considered' to 'carried out if the assessed doses are sufficiently high and uncertain that it is considered'

Last sentence – change 'Annexes' to 'annexes'

*Section 4*

Paragraph 1, sentence 1 - change 'outline' to 'outlined'

Bullet point 3 – change 'qualified' to 'suitable'

*Annex A*

Paragraph 1, sentence 5 – change 'river Thames estuary upstream' to 'River Thames estuary itself upstream'

Paragraph 1, sentence 6 – change 'river Colne' to 'River Colne'

Bullet point 3, sentence 2 – change 'discharges may decrease the estimated potential doses by factors of about 30' to 'discharges decreased the estimated potential doses by factors up to 30'

Bullet point 3, sentence 3 – change 'better' to 'specific'

Bullet point 8, sentence 1 – change 'quite cautious' to 'cautious'

Bullet point 8, sentence 2 – change 'due to the uncertainty' to 'due to the partly cancelling effect due to the uncertainty'

**Action 6.1** Jane to provide David Webbe-Wood with the correct list of authors for the PC-CREAM document.

*Annex B*

Throughout – use same referencing convention throughout document.

Paragraph 2 – remove first sentence and add second sentence to end of paragraph 1.

Paragraph 3 – remove

Paragraph 4, sentence 4 – change 'to uplift' to 'to increase'

Table 1 - remove

Paragraph 5 – remove

Paragraph 6 – remove, move third sentence to top of paragraph 7

Paragraph 7 – rewrite to describe total volumes only

**Action 6.2** Ray to use annex B for note on small users for main NDAWG group

Final draft of the report is required by the end of October to issue to the main NDAWG group members.

**Action 6.3** David Webbe-Wood to circulate revised report and annex B to subgroup members by Friday 14<sup>th</sup> October

**Action 6.4** Members to comment on revised report by Friday 21<sup>st</sup> October and David to complete report by Friday 28<sup>th</sup> October.

#### ***4. Summary of achievements of the working group***

David Webbe-Wood has drafted a table of progress of the subgroup against the terms of reference. Members agreed with the draft with a couple of additions.

TOR 4 – cite EA principles document

TOR 5 – add 'This could also consider stakeholders'

#### ***5. AOB***

David Webbe-Wood thanked members for their contribution to the subgroup.

#### ***6. Summary of Actions***

**Action 6.1** Jane to provide David Webbe-Wood with the correct list of authors for the PC-CREAM document.

**Action 6.2** Ray to use annex B for note on small users for main NDAWG group

**Action 6.3** David Webbe-Wood to circulate revised report and annex B to subgroup members by Friday 14<sup>th</sup> October

**Action 6.4** Members to comment on revised report by Friday 21<sup>st</sup> October and David to complete report by Friday 28<sup>th</sup> October.