

## NATIONAL DOSE ASSESSMENT WORKING GROUP

### PAPER 14-08 REPORT BACK FROM SUBGROUP ON SHORT TERM RELEASES

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5th meeting held on 8 October 2008, Aviation House London.

#### Present

Chair	Rob Allott	EA
Regulators/agencies	Ray Kowe	HPA
	Justin Smith	HPA
	David Webbe-Wood	FSA
Industry	Laurence Austin (via teleconference)	British Energy
Consultants	Claire Johnson	Westlakes Scientific Consulting
Apologies	Paul Dale	SEPA

#### 1. Minutes of previous meeting 2 October 2008

Action 3.5 Rob and Paul to look at EA and SEPA data on fishing club catches. *Closed, There is no available data.*

Action 3.9 Rob to check the value for fraction of time indoors during passage of plume for the realistic scenario. *Completed, Rob has passed the data onto Justin.*

Action 4.1 Ray to check on John Hunt's correspondence on angling seasonality. *Completed, John sent Rob his available data.*

Action 4.2 Rob to ask Mike to clarify his query on uncertainty in of individual doses from the ingestion of fish *Completed, Rob has included this in the relevant discussion in the revised short term release to rivers paper.*

Action 4.3 Claire to ask Steve Jones is he is aware of an appropriate value for americium Kd for short term release to rivers. *Completed, Steve is not aware of a Kd value.*

Action 4.4 David to check on the data on fish consumption rate in table 5 of the short term to releases paper. *Completed,*

Action 4.5 David to revisit any data he has on seasonality of water consumption. *Completed, There is no available data.*

Action 4.6 Justin to speak to Jo Brown if there is any information available on drinking water seasonality from the removal of radionuclides from drinking water project for the Drinking Water Inspectorate. Ongoing. The report for the project has been published.

Action 4.7 David to supply Justin with integrals of activity concentrations in food following short term deposits of C-14 and S-35 to ground so he can calculate short term doses. *Completed.*

Action 4.8 Justin to get habitation and food production points from Laurence. *Completed.*

Action 4.9 Rob to extend the short term release to rivers paper to say that release to sewers is not an issue. *Completed, Rob has added this to the guidance note.*

Action 4.10 Rob to send Justin the EA report on cyclotrons *Completed.*

Action 4.11 Justin to ask Ciaran McDonnell if he has any useful information on cyclotron discharges. *Completed.*

## 2. Short term releases to rivers

Rob has now addressed the comments from members and the peer reviewers in the revised paper:

Filtered water activity is now included in the model. This flags up the problem with the high americium kd. The value came from the HPA GDC document which does not have a reference to the source of the data. Rob has used a kd value of  $5000 \text{ m}^3 \text{ kg}^{-1}$  from IAEA Tecdoc 364

**Action 5.1** Justin to check the source of the GDC kd value for americium.

**Action 5.2** David to get a copy of the latest revised IAEA Tecdoc 364 from Stuart Conney.

**Action 5.3** Rob to check the americium kd value in RP72.

A loss term has now been added to the sediment short term model so that it is now consistent with the continuous model.

The short term model now calculates integrals over the first 3 months after release then the subsequent 9 months, it previously integrated over the whole twelve month period.

**Action 5.4** Rob to check that there is no kd for a cautious release scenario.

The results for surrogate radionuclides have now been removed from the tables.

Three scenarios are now considered for comparing the dose per unit release for the short term model

- 12 month limits only
- Quarterly notification levels
- Monthly limits

Rob has removed the existing case study replaced it with three new ones.

Rob gave members an overview of the results in the revised the paper.

Subgroup members made the following comments on the revised paper:

**Action 5.5** Justin to send a list of typographical errors on the short term release to rivers paper to Rob.

The term 'annual dose' needs clarifying

Footnote for Table 1 states that pessimistic short term releases should not be used in an assessment, better to use the term 'excessive pessimism has been adopted'.

**Action 5.6** Rob to check that there is no kd for a cautious release scenario.

Section 5.6, third sentence the term 'The annual dose' should be replaced with 'The annual dose for individual members of a group'.

Rob will change 'river Thames' in Table 1 to 'river Aire'.

Rob will change 'quarterly notification limits' to 'quarterly notification levels' throughout the paper.

**Action 5.7** Rob to check the daily water consumption rate of 2.8 L for offspring in Table A1.1.

Members felt that the NDAWG habits subgroup should consider the issues with the consumption of water.

Rob informed members that he will address their comments and finalise the paper for the main NDAWG meeting in November 2008.

### 3. NDAWG guidance note

Rob has produced a draft guidance note on assessing doses from short term releases. The aim is to present the guidance note for comment at the main NDAWG meeting in April 2009.

Several comments were made on the guidance note:

Jane thought it was too long, Rob will shorten the text in Sections 5, 6 and 7.

The sections on short term releases to coast/estuary and sewers will be moved to an appendix.

Rob will add text box with summary of guidance for each report section.

Rob will change 'Principles' in the title of Section 3 to 'General guidance'

**Action 5.8** Justin to complete Section 4 on short term releases to air.

**Action 5.9** David to complete Section 9 on CFIL's.

Rob to add in more information into 'For short term to differ from continuous then there needs to be variability in dispersion and or habits' including role of habit surveys.

Section 3, 3<sup>rd</sup> bullet point – Rob to change 'central estimate of dose' to 'central estimate of dose that is reported'

Section 3, 5<sup>th</sup> bullet point – Rob to check level of uncertainty in 0.3 mSv y<sup>-1</sup> source constraint.

There was some discussion on the probability of multiple short term releases at the same time, and the probability of the same group being exposed (dependant on prevalent wind direction).

**Action 5.10** Rob to check contaminated land regulations/models to see how probabilities of multiple are treated.

**Action 5.11** David to check on what HPA consultation document recommends about use of probabilities and to email his findings to members.

Laurence informed members that in the event of a grid failure there will be emergency generators but no need to shut down and full depressurisation so multiple release are unlikely. There was the possibility in the event of an accident at one site the NII insist on nearby reactors being shut down.

Rob envisaged that the only other possible multiple release may be a couple of hospitals (e.g with cyclotrons) in the same location who may happen to discharge at the same time.

**Action 5.12** Members to send Rob any comments on multiple releases.

#### 4. Short term releases to atmosphere

Justin presented the result of his assessment of adult doses for unit releases and the AGR case study using the various realistic, cautious and continuous assumptions. There were several comments from members on the document:

For the AGR case study Justin uses a 12 hour release for cautious release rather than 30 minutes, Lawrence confirmed this was a reasonable assumption.

Lawrence informed Justin that he could give the Beta particulate (Sr90), Justin said there was probably greater areas of uncertainty to be considered.

Justin will add the distances considered in the assessment to the list of source and dispersion parameters at the start of the document and a reference to FARMLAND.

**Action 5.13** David to supply Justin with a reference for SPADE.

Justin to remove the totals over radionuclides row in the results tables, and to split the foodstuffs up for transparency.

Justin to remove radionuclides that have no dose (Se75, I125, Pu238) from the results tables.

Rob suggested that Justin could scale his results to reproduce the equivalent of Figures 3 and 4 of the rivers paper, he will show Justin how to do this.

The possibility of other users using the paper to run ADMS for other locations was considered.

**Action 5.14** Justin to add all the assumptions and data required by a potential user into an appendix or at least include appropriate references to these data

Justin will extend the study to consider other age groups.

The possibility of adding other case studies was considered by members.

**Action 5.15** Rob to ask members at the main NDAWG meeting if they are aware of any short term release case studies involving actinides.

The case study for cyclotrons may be difficult as key radionuclides such as C11, O15 and F118 are not considered in ADMS. Members agreed to use a scoping approach such as the methodologies described in the HPA report RPD-OP-003-2006 by Ciaran McDonnell.

It was concluded that a paper similar to that for short term releases to rivers, include case studies for cyclotrons and extended to age groups for presentation at the main NDAWG meeting in April.

Rob informed members that once Justin's paper and the guidance note had been completed for the NDAWG meeting in April the short term release will have fulfilled its remit and will be disbanded.

**Action 5.16** Ray to invite the NDAWG small user representative Peter Marsden to the next subgroup meeting in February

## 5. Date of next meeting

The last meeting of the subgroup will take place late February, 2008.

## 6. Summary of Actions

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Ray Kowe, 10 October 2008