

NATIONAL DOSE ASSESSMENT WORKING GROUP

PAPER 8-06: REPORT BACK FROM SUB-GROUP ON MODELLING

2nd meeting held on 21 September 2005, Aviation House London.

Present

Chair	Rob Allott	EA
Regulators/agencies	Ellis Evans	FSA
	Ray Kowe	HPA
	Jane Simmonds	HPA
Scientific Consulting	Mike Poole	Nirex

The Chairman welcomed Mike to the sub-group and explained the terms of reference for the subgroup.

1. Apologies

Marcus Grzechnik and Ciara Walsh. Ruth Binny has moved to another section within FSA.

2. Minutes of previous meeting 13 April 2005

Action 1.1 Subgroup members are asked to comment on these terms of reference. Completed. Members had agreed on terms of reference.

Action 1.2 Subgroup members are to comment on the matrices and to seek comments from colleagues by the end of May. Completed. Rob has received comments from several members and their associates which he has incorporated into the paper.

Action 1.3 Rob to prepare an outline of the modelling paper for subgroup members to contribute to. Completed.

3. Review scope of draft NDAWG modelling paper

Rob has produced a draft paper for the subgroup entitled "Overview of radiological assessment models – key gaps and uncertainties". This draft paper was discussed and the following points were made.

In point 6 of the introduction Rob asked members whether the paper should be concerned with only prospective assessments as he had received several comments from CEFAS related to retrospective assessments. Jane suggested the ideally the paper would address both but with the emphasis on prospective.

Mike queried whether the paper was dealing with accuracy of the models themselves or with the data used in models. Rob said that it was focussed on the uncertainty in transfer modelling and data. It was suggested that the word 'data' be added to point 6.

Rob outlined the scoring criteria for significance and uncertainty, which he has used in the tables. The uncertainty is scored by expert judgement, hopefully based on evidence. For significance a score of 1 is given for an estimated dose less than $20 \mu\text{Sv y}^{-1}$, based on the principles document. Doses greater than $100 \mu\text{Sv y}^{-1}$ would score 3. Any estimated dose between these two values would score 2. The doses are those estimated for known authorised discharges, using the EA generic methodology. The dose and uncertainty are independent variables so are multiplied to give an overall score. Previously, the different models and radionuclides had also been considered on the basis of public concern. It was decided that this was too subjective and we would just evaluate the models and data on the basis of significance and uncertainty.

Members agreed that scores of 1-2 were low, 3-4 medium and 6-9 significant and deserved priority attention.

Rob has rearranged the initial matrix for investigating the adequacy of models into tabular form. There are separate tables for release to air and water, with the release to water including both freshwater and marine. There are two tables for each, continuous and short-term release.

It was agreed that the full list of radionuclides would be included in each table as this would facilitate incorporating the tables into a spreadsheet to check the calculations.

4. Complete scoring tables for NDAWG modelling paper

Members then went through each table revisiting Rob's initial attempt at scoring. Mike asked if the dose was per unit activity. Rob said the dose was based on permit doses.

Scoring on dose was based on the EA database of permits for aerial and freshwater doses. Marine doses and uncertainty for all release types were based on judgement on a radionuclide by radionuclide basis. The release to sewers was not considered and it was decided that this will not be included in this report but treated separately at a later date.

Significant radionuclides for the release types were:

Air – ^{14}C , ^{35}S , noble gases, ^{125}I , ^{129}I , ^{131}I ,

Freshwater - OBT, ^{14}C , ^{22}Na , ^{24}Na , ^{35}S , ^{32}P , ^{33}P , Strontium, ^{90}Y , $^{99\text{m}}\text{Tc}$, ^{125}I , ^{129}I , ^{131}I , ^{134}Cs , ^{137}Cs , Thorium

Marine – ^{210}Pb , ^{210}Po

5. Finalise key areas of uncertainty

For each release type the areas of modelling uncertainty were classified into high, medium or low. Each area of uncertainty was then graded as being a modelling or measurement problem, and was assessed on the ease with which the problem may be addressed, with a suggestion of who is the most appropriate body to carry out the work.

Ellis informed the subgroup that the FSA were planning to look at one of the issues which was a survey in Scotland of sheep which had been fed on contaminated seaweed.

Action 2.1 Rob to tidy up the document by the end of the first week in October and issue it to the subgroup.

Action 2.2 Members to get comments back to Rob by the end of October.

6. Agree recommendations

Members agreed that at the next NDAWG meeting in November the subgroup would inform the main group of the modelling subgroup's findings to date. The subgroup will seek advice from the main group as to whether the subgroup should be considering short term releases.

The subgroup will ask the main group if the subgroup should extend its remit to sewers or be disbanded. If the main group agree that the subgroup consider sewers then the modelling subgroup would convene another meeting and invite known experts on sewer modelling.

7. AOB

None.

8. Date of next meeting

To be decided after the main NDAWG meeting in November.

9. Summary of Actions

Action 2.1 Rob to tidy up the document by the end of the first week in October and issue it to the subgroup.

Action 2.2 Members to get comments back to Rob by the end of October.

Ray Kowe, 23 September 2005