

NATIONAL DOSE ASSESSMENT WORKING GROUP

SUB-GROUP ON SHORT TERM RELEASES

1st meeting held on 26 September 2006, Aviation House London.

Present

Chair	Rob Allott	EA
Regulators/agencies	Paul Dale	SEPA
	Ray Kowe	HPA
	Justin Smith	HPA
	David Webbe-Wood	FSA
Specialists/NGO's	Amanda Moreton	NHS
Apologies	Laurence Austin	British Energy

1. Welcome and introduction

The Chairman welcomed members to the first meeting of the subgroup, membership of the subgroup was agreed upon.

Laurence has sent an email outlining his views on short term releases which will be taken into account during today's meeting.

2. Terms of reference

The Chairman welcomed members to the first meeting of the subgroup, membership of the subgroup was agreed upon.

The Chairman drew up terms of reference for the subgroup, these are:

The aim of this sub-group is to consider issues relating to the dose assessments for short term non-accidental releases of radionuclides through the environment. In particular it will:

- Give guidance on realistic dose assessment for short term releases for comparison with dose constraint.
- Give guidance on how to combine doses from short term and continuous releases from different sources and sites.
- Give guidance on assessing food concentrations arising from short term releases for comparisons with CFIL's.

- Address the appropriate recommendations in NDAWG paper NDAWG/2/2006 relating to the short term release group.

Action 1.1 Rob Allott to ask the steering group to endorse the terms of reference for the subgroup.

Action 1.2 David to check CFIL regulations in the SEPA guidance document.

3. Discussion about previous work on short term release

Members informed the Chairman of their knowledge of any guidance, tools, reports on short term release, these included:

HPA document on short term releases to the atmosphere, NRPB-W54.

Environment Agency document on modelling the dispersion of radionuclides following short duration releases to rivers, R&D technical report, P3-074-TR.

FSA/CEFAS report looking at short term releases to the sea.

AEAT scoping study on short term releases to sea.

In addition there have been several authorisation assessments: Hunterston B and Torness, Hammersmith cyclotron (Ciaran McDonnell), Environment Agency.

Action 1.3 Subgroup members to send Ray documents to circulate among subgroup.

4. Key issues

Today's meeting will focus on four key issues relating to short term releases:

- Why are we doing it
- Screening assessment guidance
- What is realistic
- Cyclotrons

Why are we doing it

Doses differ significantly for short term release than annual discharge limits.

If the release is reasonably continuous then do not need to study it

There is a need to protect people from significant doses, there may be a need for monitoring for assessing dose (trigger) levels, constraints, CFIL's

There may be a need for optimisation to attain authorisation conditions e.g. timing of releases (high tide etc.)

Compliance issues with Basic Safety Standards and directions on Agencies.

Screening assessment guidance

The following considerations were given to release to different environments:

Generic assessments:

12 month or 1 month discharge limits.

Justifiable longest period. (Was this the period for which limits are set?)

All nuclides with limits unless there is a justified reason.

Aerial assessments:

Default release time of 30 minutes.

Location for calculation 100m for dose to person (100% of the time), 500m for food contamination with a shift to peak distance for elevated releases.

Effective and actual release heights with default ground level.

Worst Case meteorological conditions and wind blowing toward critical group and food crops.

ADMS/AERMOD models with worst case 30 minute air concentration and deposition. (AERMOD (dated 04300) is as the preferred model on November 9, 2005 includes deposition, previous versions do not)

Food assessments:

Integrated concentrations for milk and eggs.

Peak concentrations for vegetables (assume vegetables can be stored and consumed over year so peak concentrations and decay), integrated decay corrected concentrations for meat.

Habits:

Annual food consumption rates.

Integrated air concentrations for inhalation calculations.

River:

Default time for 30 minutes

Peak fish concentrations, summer period, low flow conditions.

Habits full 20 kg per year fish consumption, occupancy factor.

External irradiation from sediment – integrated dose rate for 30 minute period per day.

Integrated concentrations for water consumption calculation, peak and short period drinking.

Sewers:

Dose to sewage treatment workers.

Peak short period.

Not appropriate to consider flows in dry weather conditions.

What is realistic

The various factors affecting short term releases were determined for aerial releases by comparing the factors for continuous and cautious releases.

Factor	Type of release			
	Continuous	Cautious	Short term (screening)	Short term (realistic)
Source term	All nuclides at limits	Actual discharges	Scenarios for release could be single nuclide	All at limits
Release height	Actual	-	Actual	Actual
Location	Actual/maximum	-	Actual/maximum	Actual/maximum
Meteorological modelling	Average uniform or actual wind rose	R91, generally cautious	Wind blows towards critical group or food crop. Worst actual weather.	More than 12 releases per year. Modified average weather.
Food concentrations	Best data	-	Veg peak concentrations. Milk, meat integrated concentrations.	Integrated concentrations.
External dose	Best data	-	Best data	Best data
Occupancy habits	Near enough full time	Not much time spent	Best data	Best data
Food habits	100% local produce. 95% critical group. All food groups, top two critical intake rates.	Cautious	Annual occupancy and consumption	Annual occupancy and consumption
Inhalation rates	Reference man.	-	Annual occupancy and consumption	Annual occupancy and consumption

Cyclotrons

These will be considered in the second meeting of the subgroup.

Conclusions

It may be possible to review the screening assumptions for short term releases for air and water against continuous releases to see if the short term release needs to be further investigated. The criterion for short term releases not to be important are that the doses arising from the worst case screening assessment for 12 short term releases (using monthly limits) would be less than or equal to the annual continuous dose.

For the aerial releases the worst case consists of meteorological peak air concentrations versus continuous category F/G weather conditions, and for the releases to water the worst case is for low flow conditions versus continuous average flow conditions.

5. Work programme

Action 1.4 Justin to consider implications of testing the screening assumption for short term aerial releases.

Action 1.5 Rob to ask John Titley to carry out testing of screening assumption for short term river aerial release.

Action 1.6 Amanda to ask small users if they have any issues they wish to report to the short term release subgroup.

6. AOB

None.

7. Date of next meeting

The next meeting of the subgroup will take place in March, 2007.

8. Summary of Actions

Action 1.1 Rob Allott to ask the steering group to endorse the terms of reference for the subgroup.

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Ray Kowe, 7 October 2006