SUMMARY OF AGREEMENTS AND ACTIONS FROM THE 20TH MEETING

20th Meeting held on 12th June 2012, Aviation House (FSA), London.

FINAL

1 PRESENT

Chair   Jane Simmonds  HPA
Members Laurence Austin  EDF-Energy, Nuclear Generation Ltd
Tiberio Cabianca  HPA
Stuart Conney  DoH
Paul Dale  SEPA
John Hunt  Consultant
Steve Jones  Consultant
Paul Kennedy  FSA
Peter Marsden  Small users’ representative
Wayne Oatway  HPA
Andrew Stevens  Sellafield Ltd.
Patrick Stephen  ONR
John Titley  EA
Paul Tossell  FSA
Matthew Wellstead  NDA (RWMD)

Non-member attendees:  Selwyn Runacres  FSA

Apologies: Rob Allott, Robert Beveridge, Ian Fairlie, Steve Fisher, Michael Gaunt, Brenda Howard, Barrie Lambert, Catherine Retberg, Jill Sutcliffe, Mike Thorne, Nicholas Drury

Since the last meeting David Webbe-Wood has informed the chair that he is unable to continue to attend NDAWG due to other commitments. Jane, with the support of members, expressed thanks to David for the work he has done for NDAWG, especially in relation to the guidance note on uncertainty and variability in dose assessments, and wished him good fortune for the future.
2 MINUTES OF LAST MEETING AND MATTERS ARISING
(PAPER 19-01)

Action 19.1 Secretariat to consider writing an article for publication on the work of NDAWG. Completed. HPA agreed that they would write an article, noting that the current timing of such an article would be a good way to also promote the new website which will be released into the public domain imminently.

Action 19.2 John Titley to raise the possibility of NDAWG becoming involved in a landfill model review or intercomparison study at the next steering group and to report back at the 20th meeting. Completed. Currently EA have a contract with a consultancy to develop a landfill model. In this instance members agreed that NDAWG could be used to peer review the model as it was developed. John Titley hoped that by having NDAWG peer review the model it will gain increased acceptability amongst potential users. For work on landfill dose assessments in general, Jane asked that the secretariat ask members what they felt NDAWG could do, for example develop guidance or just peer review material as it is made available.

Action 19.3 John Titley to consider, in consultation with Loughborough University, whether a paper or note to the editor describing the sewer intercomparison work could be prepared. Completed. John talked to Loughborough University and they agree that a paper would be worth while. Details of the paper are being sorted at this time.

Action 19.4 John Titley to enquire whether Oluwasola Afolabi’s thesis could be made available to members. Completed. There should be no reason why the thesis should not be released to members. However, John needs the permission of all interested parties first. Currently John is chasing up those parties to obtain permission to release the thesis. This should be done within the next few weeks.

Action 19.5 Tiberio to raise at the steering group the possibility of holding an open meeting in the future and to report back at the next meeting of NDAWG the ideas of the steering group. Completed. There is currently no enthusiasm to hold an open meeting due to time and effort availability. Jane asked that the steering group keep this under review.

Action 19.6 Tiberio to ask the steering group to produce a list of discussion topics for the 21st and 22nd meetings and report this back at the next meeting of NDAWG. This should include a possible review of older NDAWG guidance notes with respect to the updated principles document and a discussion of the use of monitoring for prospective dose assessments. Completed. See Paper 20-03 and paper 20-04.

Action 19.7 Tiberio to ask SRP for details of their December 2011 communications workshop. Completed. Peter Marsden was thanked for sending members details of this workshop. It was noted that NDAWG was not involved in setting up or running the workshop and so its focus was mostly outside that of direct interest to NDAWG. Further discussion on the implications of this workshop on NDAWG was held under the NDAWG review.

Action 19.8 Tiberio, through the steering group, to ask Paul Dale whether the heterogeneous subgroup should be re-established and if so what he thought would be its main objectives. Completed. Paul will update members in this meeting.

New actions from discussion of the above points

Action 20.1 HPA to write an article for publication in a journal highlighting the work of NDAWG and promoting the new website

Action 20.2 Secretariat to ask members what they feel NDAWG should be doing regarding landfill dose assessments. Options include development of guidance or review externally produced material.

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Three DISCUSSION ON RADIOACTIVELY CONTAMINATED LAND

Two presentations were made on radioactively contaminated land. The first presentation was by Paul Dale who discussed the contaminated land regulations in Scotland and updated members on the ongoing work at Dalgety Bay. The second presentation was made by Wayne Oatway who outlined some of the features within guidance currently being developed at HPA, and gave an overview of the work dealing with radioactive objects currently being found around the Sellafield site. More detail of Wayne’s presentation can be found in an associated paper (20-02).

John Hunt asked Wayne whether, within his assessment, account had been made of the different substrate types found around Sellafield given potential differences in the object populations and use of the land between sandy and rocky areas. Wayne replied that as most of the monitoring data had been obtained from sandy areas, due to limitations of the monitoring equipment, this limited the ability of the assessment to account for any differences between sandy and rocky areas. Habit data for both types of areas were, however, used to determine exposure scenarios and pathways and to create the characteristics of the exposed groups. Wayne explained that the assessment could only use the available data. However, conclusions drawn from the assessment was that the risks to health from using sandy areas was very low and the risks associated with rocky areas were also likely to be very low unless those areas had object populations many orders of magnitude greater than those estimated to be present within the sandy areas. Paul Dale agreed that lack of sufficient data was always likely to be a problem with this type of assessment and consequently there would always be significant uncertainty. It was agreed that the only approach that can be used in such situations is to clearly state all known facts and any assumptions made so that the limitations of the assessment can be clearly seen. If possible, an assessment should also provide guidance on future work that could reduce the uncertainty. This was done within the report written by HPA describing their assessment.

A question was raised about how to include ingestion of various materials. This was highlighted by the presentations in that different assumptions had been made regarding the size of material that was assumed to be ingested. It was pointed out that an assessment would normally deal with inadvertent ingestion of material and this would limit the size of any objects available for that pathway. However, it was recognised that deliberate ingestion of material, for example as may occur if someone was present with the medical condition known as pica, may result in objects greater than a few millimetres being ingested. Wayne noted that in his assessment ingestion of large objects was considered as a bounding case, noting that caveats were attached to any conclusions drawn from this. It was agreed that consistent use of an object size assumed to be inadvertently ingested would help presentation of this type of assessment. Wayne noted that the HPA guidance would contain some information on this although, in reality, this is likely to be driven by the available data.

Steve Jones asked whether detailed guidance on the probability of encountering an object could be produced. NDAWG agreed that this is not likely due to the huge range of exposure situations. In the case of the situations discussed in the presentations, the environment was very dynamic with new objects coming into the area with time making the situation very complicated. The assessments were likely to be different to that performed if the situation was one of a stable environment. Wayne noted that the HPA guidance will include a discussion of how to estimate the probability of encountering an object. Given the problems of producing precise guidance on this topic, members agreed that following the HPA guidance was likely to be the best approach to take.

John Titley raised a general question regarding the use of resources. For example, a lot of money and effort has been applied to the beaches around Sellafield to detect objects present. Given the relatively low risk that has now been estimated for that area, is continued monitoring justified? In addition, given that the estimated risks around Dalgety Bay may be greater than those around Sellafield, and the uncertainty in risk estimate is still very large for Dalgety Bay, is there any justification in spending more to monitor the beaches around Sellafield than at Dalgety Bay? There is no clear answer to these questions as it does not just depend on risk to health but also on policy, public perception and other considerations.
John Hunt noted that assessments need to be consistent as far as possible so that they are widely accepted. Members agreed that this was important but as each situation was different it may prove hard in practice. Wayne noted that the HPA guidance aimed to provide overarching guidance for assessing exposures from radioactively contaminated land and the use of that guidance should allow a consistent approach within assessments to be made. Regarding individual parameter values, it was recognised that each situation is different and hence may require large amounts of site specific data. There are, however, documents available that present a discussion on how to select suitable parameter values or which give generic values for use in scoping assessments where site specific data is not available.

Jane asked members what they felt NDAWG should be doing in this area. It was noted that a subgroup had been set up to look at this but has not progressed its work significantly. It was agreed that given their recent experiences, the most efficient use of NDAWG was for Paul Dale, Wayne and John Titley to write a note outlining the issues they have encountered so that any lessons learnt may be captured and promulgated to other parties for information. Paul Dale mentioned that the biggest issue he had faced was with monitoring as, within an existing situation, it takes time to build up a picture of what is there and its extent and so monitoring will always need adapting as information comes to light.

**Action 20.3** Paul Dale, John Titley and Wayne Oatway to write a note for NDAWG detailing lessons learnt from their experiences assessing radioactively contaminated land.

Jane asked that the steering group reviews progress of this work and reports back at the next meeting.

**Action 20.4** Steering group to review the progress of the ‘lessons learnt’ note on assessing radioactively contaminated land and report back at the 21st meeting.

It was agreed that for now NDAWG does not need to do anything else in this area except what is noted above. Members wished to receive updates on work dealing with radioactively contaminated land, for example updates on assessments carried out of the risk to health from radioactively contaminated land or the production of guidance on assessing the radiological impact of radioactively contaminated land.

Peter Marsden noted that COMARE are looking into this issue but will concentrate on the risk to health rather than issues related to performing a dose assessment. Therefore there is scope for NDAWG to be involved in this area, concentrating on assessing the dose should an encounter occur and also assessing the probability of such an encounter occurring.

### 4 INTRODUCTION TO CHEMICAL SPECIATION AND ENVIRONMENTAL MONITORING FOR RETROSPECTIVE DOSE ASSESSMENTS

Laurence Austin presented this item based on his experiences. This item came about due to discussions in previous meetings on whether NDAWG should develop any guidance on these topics.

In terms of chemical speciation it was felt that not a lot could be done by the way of guidance and that organisations like ICRP have information published on its assumptions on chemical form.

Regarding the use of environmental monitoring to inform retrospective dose assessments members agreed that it was important that the reason for the assessment needs to be very clear and that this would then drive the use of any available data. For example, if the assessment was a scoping one then more caution could be used when deciding on suitable parameter values; a detailed assessment will require data that has less uncertainty. It was raised that care must be taken when presenting
results. If the data used were not considered certain then presenting a dose to the nearest microsievert may not be appropriate. In addition, whilst a radiation protection professional may not consider as significant a difference of a factor of 2 between the results of different assessments, this may be hard to explain to the lay person. In such situations a general comment, such as ‘the dose is less than X Sv’, may be better.

Steve Jones noted that it was sometimes difficult using data when it came from a small sample size. However, if that is all the data available then it should be used although limitations of using such data should be clearly discussed.

Jane noted that when it became difficult to use monitoring data due to the influence of background it may only be possible to perform a dose assessment using models. Any data collected can then be used to backup any modelling assumptions made.

Within his presentation Laurence raised the question of how data below the limit of detection could be used. Members agreed that if no radioactivity was expected to be present then assuming it is not there is likely to be justified. However, if site history shows that radioactivity is expected to be present then it should be assumed to be present at some level. The reason for the assessment should drive how any monitoring data is used. For example, a scoping assessment should use the limit of detection rather than some fraction of the minimum detectable activity (MDA) in order to retain suitable caution. Laurence also noted that for external exposure, use of ‘standard’ background values could lead to negative dose rates from suspected radionuclides.

John Hunt noted that as discharges are reduced the above situation is likely to become more of an issue as measurements are more likely to be around background levels. It was agreed that any work should always give assumptions made so that any results can be placed into the correct context. This is especially important in how an assessment used any monitoring data.

Paul Dale noted that in his experience communication of the results of a dose assessment over time may also cause problems. This can occur, for example, when a pathway or exposed group increases in importance over time. In some cases this had led stakeholders to question whether new pathways or exposed groups have recently developed even though they were always present.

Laurence said that ongoing work he was involved with was looking at these issues in detail at a single site. Other members also expressed their interest in this topic, both from a site operator point of view and that of the regulator. Members felt that the best use of NDAWG was for Laurence to coordinate the development of a list of issues within this area and members provide feedback as required. It was suggested that this should be done by correspondence rather than with the creation of a subgroup.

**Action 20.5** Members should send any issues they are aware of to Laurence on the use of monitoring data for retrospective dose assessments. Laurence to coordinate development of a list of issues and report back at the 21st meeting.

### 5 DISCUSSION ON COLLECTIVE DOSES

Tiberio Cabianca presented a discussion on calculation and use of collective doses. Specifically he asked whether collective dose still has a role, what does NDAWG think of the HPA advice on collective dose and should NDAWG review methodologies that are used to estimate collective dose?

Members commented that collective doses still has a role to play although their use is situation specific. Laurence noted that collective doses are still used regularly in the optimising processes although currently collective dose plays little role in regulatory decision making.

Regarding the estimation of the collective dose, members noted that there is often difficulty in estimating collective dose and such estimates are open to legal questioning. For example, how has
the population been determined or why has a particular truncation time been selected? Members felt that NDAWG should have a view on how population and truncation times should be selected.

It was also raised that care is needed in the use of results of a collective dose assessment. For example, how an estimated collective dose is used when the assessed population is a few tens of people (a workforce for example) is likely to be different to that estimated using a population of a few thousand (public for example).

It was also noted that various organisations are now decreasing the importance of collective dose, with the IAEA basic safety standards and the new EU BSS not mentioning it. Members felt that as collective doses are still being used then some organisation should recommend their use and give suitable guidance. Members felt that NDAWG is in a position to do this. Members felt it is particularly important to give guidance on when to use collective dose and how to use the results, especially when comparing between different assessments. In addition, members felt that guidance on when not to use collective dose, and mistakes made in estimating collective dose in the past, should also be given.

Jane asked that Tiberio develop an outline of possible guidance from NDAWG on the estimation and use of collective dose for discussion at the next meeting.

**Action 20.6** Tiberio Cabianca to develop an outline of a guidance note on the estimation and use of collective doses for the 21st meeting.

### 6 REPORT BACK FROM MEMBERS

Patrick Stephen said that an interim version of the new IAEA BSS was published last November. It is now going through approval by other UN organisations which are sponsoring it with an intended publication date of 2013.

A draft of the EU BSS is currently within the Atomic Questions Group for review; this process may take up to 3 years. The HSE are coordinating UK responses and have set up three working groups looking at occupational, medical and public exposure issues.

Regarding new build, ONR and the EA have completed their joint generic design assessment on the AP1000 and EPR designs. Interim approvals have been granted and a statement on design acceptability (SODA) has been issued.

The bill to create a separate entity of the ONR has been included in the energy bill, a draft of which is now out for consultation. The intention is for ONR to become a statutory corporation early 2014.

Jane Simmonds fed back on ICRP. They had a main meeting in November 2011 that also coincided with an open meeting. This was felt to be a great success although ICRP members did not have sufficient time to attend all parts of the open meeting. ICRP have recently consulted on recommendations on occupational intakes of radionuclides, radiological protection against radon and radiological protection in geological disposal of long-lived solid radioactive waste.

Jane noted that the HPA is moving into Public Health England in April 2013 although its radiation function will still be UK wide.

Jane noted that the IAEA EMRAS programme had ended and a new project, MODARIA, had been started to continue work on environmental modelling.

WHO had published a preliminary dose assessment on their website following the Fukushima incident (http://www.who.int/ionizing_radiation/pub_meet/fukushima_dose_assessment/en/). A second expert panel has been set up to look at the health risk associated with the Fukushima incident. UNSCEAR has been assessing the radiological impact of Fukushima with additional work being done on the environmental impact (http://www.unscear.org/unscear/en/fukushima.html).
John Hunt noted that SRP are running an environmental modelling seminar in September 2012. It was thought that this will concentrate mainly on solid waste.

John Titley told members that the way EA acts as regulator in Wales may change although discussion is still in its early stages.

John Titley told members that the report on the principles for prospective dose assessments is nearing completion. He is currently seeking approval from various organisations including SEPA and HPA. He hopes that publication will be within a few months.

7 NDAWG REVIEW (PAPER 20-04)

Terms of Reference
The terms of reference are reviewed at each meeting as a standing agenda item. It was felt that the current terms of reference are suitable and are being met so no changes were required. Members agreed that the current spacing of meetings was appropriate.

Future work programme
Jane raised the idea that the theme for the 21st meeting could be on dose assessments from routine releases. Members agreed that this would be a suitable topic and asked the steering group to consider this.

Action 20.7 Steering group to consider the topic for the 21st meeting to be on dose assessments from routine discharges of radioactivity.

From the list of other items given in paper 20-04, it was felt that topics dealing with modelling in the marine environment and radionuclide removal efficiency during treatment of drinking water would be dealt with by the new environmental modelling subgroup. Work on chemical speciation and the role of monitoring measurements in retrospective assessments are being dealt with as discussed earlier. The landfill model intercomparison was currently underway with HPA agreeing to act as a peer reviewer and feedback will be given at a future meeting of NDAWG.

When the updated principles document is published John Titley said he would review published NDAWG guidance notes and report back to NDAWG the extent of any revisions required.

Action 20.8 John Titley to review published guidance notes in light of the new principles document and report back to NDAWG any updates required.

At the 19th meeting it was noted that the FSA, EA and site operator were all preparing dose assessments for potential new build at Hinkley Point. Jane noted that the HPA would be happy to lead a comparison of such assessments and report back to NDAWG in the future.

Guidance notes

Habits
John Titley had circulated to the habit data and critical group subgroup the latest draft of the habit data guidance note. He asked that comments are sent to him by the end of June 2012. The draft guidance note will then be placed on the website to allow all members to review it and provide comments. It is hoped that the guidance note will be published late summer 2012. It was agreed that if possible all future discussion on this guidance note was done by correspondence.

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Environmental modelling

John Titley has initiated discussions on the terms of reference and the possible makeup of this subgroup. John asked Wayne to place a copy of the draft ToR on the website for members to comment on.

**Action 20.9** All to send John Titley any comments they wish to make on the environmental modelling subgroup terms of reference by end July 2012.

Best practice for public communication

Little progress has been made in this area for a number of years. Members felt that, whilst interesting, it was not within NDAWG’s expertise to produce guidance in this area and such communication was best left to professional people within each organisation. Members felt it was NDAWG’s priority to make sure that any assessment is done correctly and openly so that any message given is based on the best science. It was agreed that this subgroup is wound-up and that no guidance note would be developed by NDAWG.

**Action 20.10** Secretariat to remove from the list of future guidance notes the ‘best practice for public communication’.

Heterogeneous contamination

At present members considered that there is no need for a separate subgroup; see earlier discussion.

Dose assessments in safety cases

At the last meeting it was discussed how NDAWG could be involved in safety case dose assessments. No progress has been made since the last meeting. Following a discussion it was agreed that Patrick would look into the best way to take this forward and present this to NDAWG at the next meeting. At present it was agreed that there was no need to have a subgroup working on this topic.

**Action 20.11** Patrick Stephen to report back at the 21st meeting how NDAWG could be most usefully used in support of safety case dose assessments.

Membership of NDAWG

Currently NDAWG has no members representing DECC, Scottish Government, local authorities, and the National Assembly for Wales. Paul Dale stated that in his opinion it was unlikely that anyone from the Scottish Government would be a suitable member for NDAWG. Members did not know of anyone who may be interested in joining NDAWG from the National Assembly for Wales. Wayne is currently in discussion with DECC about whether they wish to have a member on NDAWG. It was not clear if Robert Larmour also wanted to continue to be a member.

**Action 20.12** Secretariat and the steering group to attempt to obtain suitable names for additional members that could represent DECC, local authorities, the National Assembly for Wales and Scottish Government.
In addition, Jane noted that independent consultants were finding it hard to justify attending meetings. Jane asked the steering group to consider if there were any measures that could practically be taken to improve the attendance of consultants at NDAWG.

**Action 20.13** Steering group to consider measures that could improve the attendance of consultants at NDAWG.

**Annual research report**

The annual report for 2011 is now on the NDAWG website. Production of the 2012 version would start soon.

**Website**

Production of the new website was progressing and a link had been sent to members prior to this meeting so that they can view it and provide comments. To date the response has been positive. Wayne needs to continue to develop the new site adding in links to documents and developing the functionality of the members area. It was noted that having a members only area may allow documents published internally by organisations to be distributed more widely than at present.

It is hoped that the new site will be placed in the public domain soon. Anyone wishing to comment on the new website should send Wayne comments as soon as possible although, as the site has been developed in house at HPA, it would be easy to implement changes if required at a later date.

**8 ANY OTHER BUSINESS**

Jane thanked FSA for hosting the meeting.

**9 DATE OF NEXT MEETING**

The next meeting will be held on the 26th February 2012. Wayne will send a reminder in November.

**10 SUMMARY OF ACTIONS**

**Action 20.1** HPA to write an article for publication in a journal highlighting the work of NDAWG and promoting the new website

**Action 20.2** Secretariat to ask members what they feel NDAWG should be doing regarding landfill dose assessments. Options include development of guidance or review externally produced material.

**Action 20.3** Paul Dale, John Titley and Wayne Oatway to write a note for NDAWG detailing lessons learnt from their experiences in assessing radioactively contaminated land.

**Action 20.4** Steering group to review the progress of the ‘lessons learnt’ note on assessing radioactively contaminated land and report back at the 21st meeting.
Action 20.5 Members should send any issues they are aware of to Laurence on the use of monitoring data for retrospective dose assessments. Laurence to coordinate development of a list of issues and report back at the 21st meeting.

Action 20.6 Tiberio Cabianca to develop an outline of a guidance note on the estimation and use of collective doses for the 21st meeting.

Action 20.7 Steering group to consider the topic for the 21st meeting to be on dose assessments from routine discharges of radioactivity.

Action 20.8 John Titley to review published guidance notes in light of the new principles document and report back to NDAWG any updates required.

Action 20.9 All to send John Titley any comments they wish to make on the environmental modelling subgroup terms of reference by end July 2012.

Action 20.10 Secretariat to remove from the list of future guidance notes the ‘best practice for public communication’.

Action 20.11 Patrick Stephen to report back at the 21st meeting how NDAWG could be most usefully used in support of safety case dose assessments.

Action 20.12 Secretariat and the steering group to attempt to obtain suitable names for additional members that could represent DECC, local authorities, the National Assembly for Wales and Scottish Government.

Action 20.13 Steering group to consider measures that could improve the attendance of consultants at NDAWG.

Matters arising

The steering group should regularly review the possibility of holding an open meeting and report back to NDAWG.

John Titley to keep members informed of any developments with regards to publication of papers, or ongoing work, in relation to the sewer model intercomparison study.

The steering group to regularly review possible topics for discussion at NDAWG meetings and report back to NDAWG.

HPA to provide feedback on the new build dose assessment intercomparison study at a future meeting of NDAWG.

NDAWG Secretariat 14th June 2012