

**WCSSG – ENVIRONMENTAL HEALTH SUB-COMMITTEE**  
**SUMMARY OF MEETING 64 OF THE EHSC - 24<sup>th</sup> November 2005.**

- 1 The Chairman welcomed members and those presenting reports.
- 2 The minutes of the previous meeting were approved for issue.
- 3 Mr Webbe-Wood of the Food Standards Agency presented the Terrestrial Monitoring section of the RIFE-10 report. The FSA monitors food, making an assessment of the impact of discharges on public health. Approximately 5500 samples are taken and 6500 analyses done, from around nuclear sites, on fish and seafood, and milk from local farms on a weekly basis. Distant sites are also sampled, and general diet surveys done.
- 4 The dose to the public is calculated from the level of radioactivity in food x amount of food eaten x dose coefficient, and compared to doses from natural radiation. The annual limit is 1000 $\mu$ Sv/yr from artificial sources of radioactivity (excluding medical sources).
- 5 The terrestrial dose, to those eating local vegetables and milk is 36 $\mu$ Sv/yr and the aquatic dose to those eating local seafood is 220 $\mu$ Sv/yr. These are broadly comparable to last year. In comparison, a London to Sydney flight gives 160 $\mu$ Sv/yr and the annual UK dose from natural sources is 2200 $\mu$ Sv/yr.
- 6 Mr Camplin (CEFAS) presented the Marine Monitoring information - the habit surveys, (500 observations in 2004), showed no change in consumption pattern. The area covered is Solway to Barrow, with local concentrated sampling around Sellafield and Ravenglass.
- 7 Beta/gamma in fish and shellfish was broadly the same as 2003. Transuranic nuclides were broadly similar to 2003.
- 8 Taking a longer view, Mr Camplin advised that C14 was increasingly slightly recently, but was a small contribution to total dose. Tc99 had reduced to lower levels in 2004 due to the new TPP process. Cs137 had fallen over a 15 year period, but there may be a small increase occurring, probably due to a redistribution of sediments in the North Sea. Of the total found in the Sellafield area, a third was due to old Sellafield discharges and two-thirds due to Marchon old discharges.
- 9 For the Environment Agency, Mr Allott explained that the EA cover effluent and environmental monitoring, and solid waste quality checking. On 1 October 2004, a new Authorisation came into force. The measurement comparisons were against the old limits, as these were in operation for most of the period. The new limits were reduced for many radionuclides. The Drigg Authorisation was currently under consideration.
- 10 For all radionuclides, liquid discharges were less than 78% of the limits and gaseous discharges were less than 26% of the limits. Drigg recorded less than 1% for liquid, and LLW was less than 37% of the limits.
- 11 Liquid, aerial and solid waste sampling is done by contractors on behalf of the EA and compared to BNGSL results.
- 12 The EA monitoring also looks at radionuclides in sand, sediment and seaweed, and gullypots in Seascale and Whitehaven. The average background doses from silts was 0.07 $\mu$ Gy/yr, the highest local dose was 019 $\mu$ Gy/yr (a slight reduction from 2003). A reduction from 0.29 $\mu$ Gy/yr to 0.13 $\mu$ Gy/yr was found for the River Calder following the closure of Calder Hall.
- 13 The dose rate has fallen over the last few years, 2003 and 2004 were identical. The average concentration was lower in 2004 than in previous years. There was a slight increase in Cs137 in silts from local areas – from historical deposits recycling. Co60 followed discharges, so an upturn was likely to show in the 2005 results. Tc99 in lobster and shellfish had dropped off.
- 14 Tritium was found in surface water, in the Drigg stream, the rail stream, at the Ehen spit and Wastwater.
- 15 Doses to various people were similar to last year, very low compared to the 1000 $\mu$ Sv/yr dose limit to the public. The increases were due to changes in habitat.
- 16 The total dose for fish consumers was 220  $\mu$ Sv/yr (210 $\mu$ Sv/yr in 2003). The total dose from Sellafield was 600 $\mu$ Sv/yr (700 $\mu$ Sv/yr in 2003). The total dose was less than the

- annual dose limit. Environmental concentrations were similar to the previous year.
- 17 Mr Parker presented the BNGSL data, apologising that no printed report was available. The responsibility for producing the report had devolved to site managements, the report for Sellafield was being worked on, but had not been ready in time.
- 18 The Sellafield programme was similar to the FSA programme. The programme covers the same pathways as the EA/FSA and a similar area was covered – 15kms either side of the site and fish samples from prescribed areas.
- 19 The dose to the critical group was calculated as 240  $\mu\text{Sv}/\text{yr}$ , creeping up over the past few years as the consumption of seafood was increasing. The dose was mainly from mussels, winkles and lobster (>75%). Am241 and Pu241 are the main contributors, Tc99 had declined, C14 was a small contributor – linked to reprocessing. There was a slight increase in Pu discharges due to plant problems in 2003, these were now decreasing. Environmental redistribution of sediments was increasing Pu availability. Tc99 concentrations were up though discharges were low in 2003, they were now falling due to the 1.5 to 2 year time delay effect. The dose from Tc99 was following a similar pattern – decreasing slowly with the discharges. Lobster was the main dose source.
- 20 Cloud irradiation (Argon 41) was now gone since Calder had shut down and was no longer part of authorisation limits.
- 21 The terrestrial programme was within 4kms of the site and the farther away results were at LoD. For the terrestrial critical group the dose is 18  $\mu\text{Sv}/\text{yr}$ . Milk is the dominant contributor, direct radiation and vegetation were small contributors, and the rest were minor contributors. Sr90 was analysed from milk. For Ru106 and I131 a modelling approach was used.
- 22 Professor Jones, comparing the RIFE-10 and BNGSL reports, said results were generally in agreement – where there were differences, this was due to a difference in sample locations, or one sample versus an average of samples, or differences in how the sample was processed for analysis (eg peeled v. peeled and washed v. not processed).
- 23 Mr Parker commented on events since the last meeting. There had been a discharge of Cs137 from the Waste Vitrification plant in April 2005, a short duration release (1 hour) from HLWP in August and an anomaly with regard to I129 had been uncovered in Thorp analyses
- 24 BNGSL has just made a prescribed process application for non radioactive processes/plants on site (handling/discharging/environmental impacts). The application is considered to have been “duly made” by the EA, and is being considered.
- 25 Mr Parker reported on the Thorp incident (a plant restart in May 2006 was hoped for, subject to NII/EA approval), Magnox Reprocessing, a complex operation to refurbish an internal crane in Magnox waste silo and sealine recovery work.
- 26 The site had been audited by the insurers (from a consortium of insurers), a thorough review by 6 auditors over 5 days. They had concluded that BNGSL were operating first class effluent plants.
- 27 Under Environmental Health Matters Professor Jones discussed a paper and report dealing with radiation risks by Cardis et al, and a summary from the US Committee on health risk of exposure to ionising radiation - available on the BEIR website.
- 28 The Chairman and Vice-chairman were re-elected.
- 29 Mr Parker advised that the revised BNGSL monitoring programme had been discussed with the EA and additional information provided. A revised programme for inclusion in the next financial year was hoped for, featuring a reduced level of food monitoring and an increased ground water monitoring element – against the objectives and principles presented at the May meeting.
- 30 Dr Emptage (EA) advised that the Article 35 report had been published and was now on the EC website (address below). The UK government was looking to respond to the EC, the EA and FSA etc were inputting information into that response.