

**WEST CUMBRIA SITES STAKEHOLDER GROUP  
ENVIRONMENTAL HEALTH SUB-COMMITTEE**

**MEETING 69 OF THE EHSC  
HELD AT CLEATOR MOOR CIVIC HALL  
ON 29 May 2008.**

Present:

|                   |                           |
|-------------------|---------------------------|
| Prof Steve Jones  | Vice Chairman             |
| Mr Ron Hargreaves | Parish Councils           |
| Dr Graham Hutson  | Parish Councils           |
| Mr Steve Standage | Allerdale Borough Council |
| Mr Nigel Calvert  | HPA                       |
| Mr Stephen Tandy  | EA                        |
| Mr Dick Howarth   | NII                       |
| Mrs Liz Sherwen   | NFU                       |
| Mr Jim Desmond    | Sellafield Ltd            |
| Mr Nick Atherton  | Sellafield Ltd            |

Public and Press

|                  |            |
|------------------|------------|
| Ms J Allis-Smith | CORE       |
| Ms P Hitchin     | UK Monitor |

1. AGENDA ITEM 1. Chairman's introduction
2. The Vice Chairman opened the meeting by welcoming those attending, including representatives of the public and press. There were a number of apologies including the chairman Professor John Haywood.
- 3.
4. AGENDA ITEM 2. Minutes of Meeting 68
5. Mr Tandy gave two amendments to the minutes from the previous meeting. Line 69 required rewording to read that the EA had attempted to meet with C.O.R.E. Line 157 should have the date amended to 2016 from 2019  
The minutes were accepted subject to the above amendments
6. There were no matters arising from the previous meeting minutes
- 7.
8. AGENDA ITEM 3. Sellafield Discharges and Environmental Monitoring 2007 – a preliminary assessment  
- presented by J Desmond (SL)
9. Mr Desmond introduced himself as a member of the Environmental Monitoring Team for Sellafield Ltd
10. The results of the Sellafield Ltd discharge monitoring for 2007 show a reduction from 2006, mainly due to the reduction in reprocessing at THORP. It was confirmed that all of the 2007 discharges were well within the rolling 12 month limits.
11. The radionuclide with the largest discharge was Antimony-125, which represent less than 31% of its limit.
12. The Caesium-137 aerial discharges from Fuel Handling Plant showed a further reduction in 2007 due to changes in the pond management arrangements.
13. A preliminary assessment of the dose to the critical group (Infants) from aerial discharges was 17.3  $\mu\text{Sv}$  compared with 24  $\mu\text{Sv}$  in 2006. The dose from liquid discharges to the critical group has been assessed as 187  $\mu\text{Sv}$ , compared with 209  $\mu\text{Sv}$  in 2006; the dose to this group is still being dominated by historical discharges

- contained within sediments.
14. The preliminary discharge data from Drigg show a reduction from the 2006 discharges.
  15. The dose from the Drigg discharges is indistinguishable from those from Sellafield, but it has been estimated by modelling as 0.01  $\mu\text{Sv}$ .
  16. There were no questions from the committee or the public and press.
  - 17.
  18. AGENDA ITEM 4. Environmental Health Matters  
- presented by Prof Steve Jones, Westlakes Scientific Consulting (WSC).
  19. The recent study concerning the mortality of UK radiation workers from non-cancer deaths was brought to the attention of the committee. This is an area which has a growing interest.
  20. The study showed a statistical relationship between radiation exposure and deaths from circulatory diseases. However the cause of these deaths could not be shown to be due to radiation exposure due to a number of other factors which could have an influence.
  21. The results of the study had a limited coverage in the national and regional press. Employees of the former BNG were fully briefed by the authors.
  22. The ICRP have released a consultation document regarding the control of radiological exposures during emergency situations. A further linked document is currently in preparation which covers the recovery phase following an emergency. These documents are more likely to be of relevance to the emergency planning sub-committee. Professor Jones will contact the emergency planning sub-committee chairman to see if they need support from the EHSC.
  23. A further consultation document looking at the use of reference plants and animals in protection of the environment (as distinct from humans) from ionising radiation has also been released by ICRP. There is continuing international interest in this issue, and a presentation on the topic may be appropriate for the EHSC at a later date.
  24. The ICRP recommendations for 2007 were approved in December. The recommendations do not change any of the limits in the UK. There may however be detailed changes to the methods for the calculation of doses.
  25. Mr Hargreaves asked about the relationship between radiation exposure and wider environmental effects as the general principle was that if humans are OK, so will the rest of the environment?
  26. Professor Jones confirmed that current thinking held this to be the case in most situations, but until recently there had been no systematic work to demonstrate that this theory was correct. There are also situations where the environment could be the main receptor – for example, where pathways to humans were absent in the most affected areas. The ICRP and others are trying to put together a logical framework to provide a framework for protection similar to that which has been developed for chemicals.
  27. Mr Standage remarked that the exclusion zone around Chernobyl has been reclaimed by wildlife
  28. Professor Jones stated that the Chernobyl area was a good case study. In the area close to the incident there were obvious detrimental effects such as dying trees. Slightly further away there was however no obvious effect and plants and animals have done well due to the lack of humans.
  29. Mr Standage confirmed that farmers around Cockerthorpe still had concerns and limitation due to the Chernobyl releases.
  30. Ms A Smith (C.O.R.E) confirmed that 9 farms on Courtney Fell were still subject to

restrictions. Ms Smith also asked why the references in the health report did not make more use of the research work done following Chernobyl?

31. Professor Jones confirmed that it was generally difficult to interpret residential population data from Chernobyl, due to the variety of other factors which could affect the health of the population. Records and assessments from other exposed groups are more relevant as these factors are known due to better information such as dose records and occupational health data.
32. Ms A Smith (C.O.R.E) asked if the health report will encourage the compensation scheme to include non-cancer illness?
33. Professor Jones could not answer this query as any such advice and decision would be made ultimately by the advisory panel for the Compensation Scheme for Radiation Linked Diseases; the views of HPA (who have recently commissioned a review of radiation and non-cancer diseases) would also be important.
34. Ms A Smith (C.O.R.E) asked if more work was planned to look at the non-cancer issue in greater depth?
35. Professor Jones confirmed that further work is still being considered. This will largely depend on what data is available.
- 36.
37. AGENDA ITEM 5. Report on recent beach monitoring work by Sellafield Ltd -presented by Mr J Desmond (BNGSL)
38. 2008/09 programme which has been agreed with the EA covers 250 Ha distributed between St Bees and the Ravenglass Estuary. The programme is however heavily biased towards the Sellafield foreshore where the highest activity finds were detected in 2007/08. This area is also the location of the greatest find rates per hectare.
39. It is also possible that some monitoring north of St Bees may be possible
40. The overall picture remains the same as the report given in last November's EHSC meeting.
41. More detailed analysis of 51 finds from the 2007/08 programme is continuing and is scheduled to be completed in July 2008. Results from the analysis of Rat ingestions are also awaited.
42. The initial focus of the monitoring this year has been on the beaches at Seascale and St Bees. 20 Hectares have been completed at each location.
43. To date, find rates have been half that from last year. It is however too early to confirm if this is an actual trend or not.
44. Monitoring is currently underway at Drigg Barn Scar.
45. Mr Tandy queried why monitoring work at Workington had not been mentioned as this relates to Allerdale Borough Council's query in the previous meeting?
46. Mr Desmond replied that the Workington part of the programme was a possibility but had not been finalised.
47. Mr Desmond also updated the committee on the sub surface marine monitoring. SL has been in discussions with UKAEA regarding monitoring technology and there is no possibility of speeding up the procurement of such technology. However the intention is that this monitoring will commence this financial year.
48. Mr Howarth enquired if the monitoring this year was repeating that of last year or covering new areas?
49. Mr Desmond advised that the monitoring will include the same general areas however they may not be exactly the same. This year they will try and monitor further down the beach at low tide. The coverage of some beaches has also been extended.  
Four repeat visits have also been scheduled for the Sellafield foreshore Within this

- monitoring period.
50. Mr Howarth also asked if more resources were being devoted to this issue?
  51. Mr Desmond confirmed that this was the case. SL how have a dedicated monitoring vehicle which is allowing the coverage to be increased from 147 hectares last year.
  52. Mr Hargreaves asked if the analysis of the particles so far had identified any surprises?
  53. To date the initial monitoring results have been confirmed. However SL are still awaiting full detailed results.
  54. Mr Hargreaves asked if the analysis still confirmed that the particles are historical?
  55. The results of isotopic ratios indicate that the particles are 25 year ( $\pm 10$ ) old
  56. Professor Jones noted that this only showed the age of the particle, not necessarily the date of release.
  57. Mr Tandy asked if the current monitoring would pick up a Plutonium particle less than 25 years old as the current method relies on the Americium content of the older particles?
  58. Mr Desmond did not have the information to answer this question.
  59. Ms Smith asked if the new vehicle would allow monitoring of Newbiggin Marsh?
  60. Mr Desmond stated that the vehicle was still restricted to sand and that access to marsh land was problematic
  61. Ms Smith asked if the medical profession was being updated on the potential risks? A document summarising the findings of the EA workshop stated that this was not the case.
  62. Mr Tandy answered that as they are still waiting detailed analysis of particles there is no new information to update the health professionals.
  63. Ms Smith noted that the activity of some of these particles is enough to be classed as radioactive waste. This means that anyone who finds a particle is not allowed to handle or store it without an authorisation. Why is there still unrestricted access to the beaches?
  64. Mr Tandy answered that the HPA had reviewed the data and advised that unrestricted access to the beaches can continue. The HPA are keeping this advice under review as new information becomes available.
  65. Ms Smith asked if signs could be used to warn beach users, as at Dounreay Sandside beach.
  66. Mr Tandy answered that the EA are currently developing an intervention strategy which will consider the use of such methods. However the current advice remains valid until more data is available.
  - 67.
  68. AGENDA ITEM 6. Newsletter Items of Environmental Interest / Works Updates - presented by J Desmond (SL)
  69. The results of the environmental monitoring associated with the Calder Hall Cooling Tower demolition have been finalised and the reports provided to the EA.
  70. There was a good agreement between the off site work completed by WSC and on site work by SL.
  71. The majority of dust was deposited on site due to the low wind speed and coastal direction.
  72. The High Volume Air Samplers (HVAS) near Calder Gate, Ponds east and the Coast collected the greatest volume of dust.
  73. The dose impact of the demolition was calculated as 0.044  $\mu\text{Sv}$  which was based on someone standing at the edge of the on site exclusion zone.
  74. Mr Desmond also discussed the monitoring of milk from local farms. Since the last

EHSC meeting SL have reported to the EA a slight increase in the concentration of I-129 in milk from local farms. Concentrations were typically <0.02 Bq/l however there was a rise to 0.06 Bq/l at the end of 2007.

75. The issue was raised to the attention of the main WCSSC members and press by the EA.
76. Since this date SL have confirmed with the laboratory that the data was correct by reanalysis of the samples.
77. The calculated dose, assuming that this was a sole source of milk for a high rate milk consumer was 2  $\mu$ Sv/yr. This represents less than 0.1% of the UK average dose from natural background. The data also reflects historic trends (when compared to the previous 10 years of data) with small peaks greater than the Limit of Detection.
78. The I-129 concentration in milk has now returned to Limit of Detection concentrations.
79. Mr Hutson asked why we see these peaks in the data
80. Mr Desmond said that due to the complicated nature of the environment it was impossible to tell
81. Mrs Sherwen was concerned that as the farm had stopped milking how can SL confirm that the concentrations had returned to normal.
82. Mr Desmond confirmed that the farm was not milking due to calving. However the trend was also seen in the milk from other local farms which have returned to LoD concentrations
83. Mrs Sherwen remarked that it would be a shame if the local milk production ceased as cows milk is a good monitor of what's in the environment.
84. Mr Hargreaves asked what the biological half life of I-129 is?
85. Prof. Jones thought that it would be relatively short.
86. Mr Howarth asked what was the objective of the milk monitoring programme was it to determine potential dose to the public or assess changes in concentration in the environment?
87. Mr Desmond confirmed that it was mainly to determine potential dose to the public. Mr Desmond also confirmed that although the EA monitoring did not show the increase, this was probably due to the sample being taken from different farms.
- 88.
89. AGENDA ITEM 7, Regulatory Issues.
90. Mr Tandy from the Environment Agency began by giving an update on the environmental monitoring during the demolition of the Calder Hall cooling towers.
91. WSC on behalf of the EA undertook wider environmental monitoring during the demolition. This considered the concentration of particulate and activity released over a 24 hour period. The report produced by WSC was peer reviewed and accepted by the EA.
92. The study showed that radioactivity was present in the dust released during the works, at approximately 70-80 Bq/Kg of Cs-137, 20-300 Bq/Kg of Plutonium Alpha and up 40 Bq/Kg of Americium-241. This is similar to the activity concentrations of coastal sediments. However, as noted by Mr Desmond, the resulting radiation exposure even to someone present at the region of highest offsite dust concentration was low, at a small fraction of a microSievert. The onsite mass concentration (micrograms/m<sup>3</sup>) averaged over 24 hours slightly exceeded the current standard for 'nuisance' dust, but the current standards allow for 35 such exceedances in any year.
93. Mr Tandy also gave a presentation on the recent work the EA have undertaken with C.O.R.E looking at the monitoring of the sediments in the Esk Estuary.
94. The work was undertaken due to C.O.R.E concerns over the current monitoring of

the sediments. Their main concern was that the EA monitoring was detecting low concentrations compared to that of C.O.R.Es own monitoring. They demonstrated this by using some of the sediments to make a pizza. The Pizza was assessed and found to be classed as LLW.

95. The EA met with a representative from C.O.R.E in March 2008 at the Estuary. The objectives of the meeting were to Explain the EAs Data Quality Objectives and monitoring programme; Understand C.O.R.Es concerns; and to provide an opportunity to sample and monitor C.O.R.E areas of concern.
96. During the meeting two locations were visited, an area close to Eskmeals Viaduct consisting of a mud bank, public right of way and associated style and one close to Wabertwaite Church.
97. Contamination monitoring was undertaken using Mini instruments 900 with a GM tube and with a twin Beta probe and Dose rate measurements were taken using Mini instruments 680 with a GM tube. The dose measurements were taken at waist height over 600 seconds. Three dose measurements were taken at each location. Samples consisted of a surface scrape until a kilogram of sample had been collected.
98. A summary table of results were shown to the committee. It was noted that it is not possible to directly compare results taken using different equipment, although the same trends can be identified. This gave the EA confidence that the monitoring undertaken by C.O.R.E and EA were giving the same overall results.
99. It was noted that the monitoring of the mud bank at Eskmeals gave a change in response up the embankment to the path as expected and that this response was seen on both the CORE and EA probes.
- 100 The area close to the church gave lower dose rates (no contamination monitoring was undertaken)
- 101 A historical summary of dose rate data was shown to the committee, this demonstrated that the recent monitoring was not inconsistent with historical data
- 102 A selection of the sample results were shown to the committee. The radionuclides to note were the Americium-241 and Caesium-137 as these had the higher concentrations.
- 103 Mr Calvert asked why there was no Cs-134 in the analysis suite. Mr Tandy confirmed that this was included but the data had been removed for the presentation as the concentration was so low.
- 104 Ms Smith questioned why the EA sampling methodology only collected the sample from the first centimetre when it is known that activity concentrations increase with depth? Ms Smith also asked why there are not warning signs in the area?
- 105 Mr Tandy answered that Lancaster University were looking at depth profiling the sediments using core samples. The EA also have a MSc student reviewing the sampling methodology. Habit surveys were also planned for the RIFE report which will be used to identify the pathways.
- 106 Ms Smith asked if the EA were planning to do any medical surveys? C.O.R.E had previously undertaken a door to door survey and found that there was an alarming incidence of cancer and cancer deaths in the area. Mr Tandy asked for the survey report from C.O.R.E
- 107 Mr Tandy showed that the EA had the following conclusions from the C.O.R.E meeting:
  - They were able to understand their concerns and explain the details of their monitoring programme;
  - Dose rates were not inconsistent with those from routine monitoring
  - Contamination monitoring detected elevated activity above background and

there was a relative response between the C.O.R.E and EA monitors.

- Sample analysis results showed consistency between the data in RIFE-12.

108 Mrs Sherwen asked why the EA went to settle C.O.R.E fears but did not take deeper samples?

109 Mr Tandy explained that surface sampling was chosen as this was the most credited scenario for human exposure to contamination. However peoples habits need to be surveyed. Also Lancaster University are taking deeper samples as part of their research.

110 Prof. Jones summarised that the exercise had shown so far that measurements of external radiation made and reported by the EA were adequately representative of conditions in the areas of concern identified by CORE. However, so far as measured concentrations of activity ( $\text{Bq kg}^{-1}$ ) are concerned, it is well established that higher concentrations can be found in depth in the sediments than are found at the surface. The main outstanding question is whether this results in any significant additional exposure pathways, not adequately covered by the current monitoring and assessment programmes. Further work is needed to answer this question, and a further update from EA is awaited.

111 Mr Tandy added that the MSc student will undertake a critical review of sampling, which will include the previous work, resulting in either a modified or justified sampling programme. The review will consider the total dose to the critical group, impact on wildlife, evidence of increasing trends at surface and the behaviour of radionuclides in the environment and cost.

112 Mr Standage asked why cost came into the discussion?

113 Mr Tandy explained that the EA needed to demonstrate cost benefit from the work

114 A member of the press asked if the EA were considering notices to advise the public of the dangers, allowing the public to make their own decisions.

115 Mr Tandy advised that such action would have to be a multi-disciplinary decision.

116 Mr Tandy also advised of a piece of work that they have asked CEFAS to undertake. This was researching the transport modelling of particles in the Irish Sea. The work will inform the beach and marine monitoring. The EA are hoping that the site operator will take on this initial model and develop it further.

117 The EA will also hold a multi agency review of the particles in September when the new data is available. They are also working on a communications strategy and an intervention strategy.

118 The EA also reported on a recent inspection of the SL effluent management arrangements. They found no evidence of solids in the effluent. There was an issue over the standard of final screening of the effluent. There was also a weakness in the prevention and minimisation of solids entering effluents at a plant level. The concluded that due to the above the site was not demonstrating BPM. They were however given confidence that the SL Life Time Plan for 2008 included enabling work for a plant to remove entrained solids.

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120 AGENDA ITEM 9 – Membership of the EHSC

121 Prof. Jones led the yearly review of membership. He stated that it was important to have an appropriate range of members to cover the terms of reference of the sub-committee.

122 Mr Calvert noted that there was value in having a representative from both the HPA and the Primary Care Trust (PCT). As Mr Calvert is moving to the PCT and will stay as a member and advise on a representative from the HPA.

123 Prof. Jones mentioned that his position was listed as a site licensee (Sellafield Ltd)

- appointed consultant. He felt this was now inappropriate, and in fact there is no consultancy arrangement in place in respect of his attendance at the Committee. He suggested it would be preferable to redefine the position as 'an expert invited from Westlakes Research Institute' and would propose this to the WCSSG Chairman.
- 124 Mr Desmond asked if the low level waste repository should have management attendance at the meeting as the LLWR was now an entirely separate site licensee company. Prof. Jones agreed that this was a good idea and would discuss with the LLWR.
- 125 There was a general discussion about the need to generate a greater interest from the general public and press for the meeting. There were mixed views on whether this would work with many members having had similar problems with other public committees. However all agreed that it was in the interest of the committee to generate more public involvement. A number of options were discussed including the use of local radio and press advertising including local journals. It was also noted that the committee discussions sometimes got quite technical and this would need to be taken into account for the general public who may not have the background knowledge.
- 126
- 127 AGENDA ITEM 10 – Any Other Business
- 128 Mr Tandy asked for an update on the availability of the Contaminated Land website which was discussed in meeting 68. Mr Atherton advised that the website was nearing completion but could not confirm the date which the site will go live.
- 129 Mr Tandy asked for an update on Contaminated Land to be included as an agenda item for each meeting.
- 130 Mr Tandy advised that there will be an EA team inspection if the Environmental Monitoring Programme.
- 131 Prof. Jones discussed the content of the press release.