

These Minutes were approved for issue by the EHSC on 30 November 2006.

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

**MEETING 65 OF THE EHSC
HELD AT ENNERDALE COUNTRY HOUSE HOTEL
ON 25th May 2006.**

Present:

Professor J Haywood	Radiation Protection Advisor, N.Cumbria Health Authority
Mrs E Sherwen	NFU
Mr W Harvey	Six Parishes
Mr R Hargreaves	Six Parishes
Dr M Emptage	EA
Dr S McCready-Shea	NII
Mr D Davies	Copeland Borough Council
Mr V Emmerson	Copeland Borough Council
Mr T Parker	BNGSL
Ms S Allen	BNGSL

Apologies:

Dr J Vickers	Cumbria Primary Care Trust
Professor S Jones	Westlakes
Cllr T Johnston	Copeland Borough Council
Dr F Atherton	Director of Public Health, Morecambe Bay Primary Care Trust

Public and Press

Ms J Allis-Smith	CORE
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AGENDA ITEM 1. Chairman's introduction

- 1 The Chairman opened the meeting by welcoming those attending, and especially Mr D Davies representing Copeland Borough Council, and Dr S McCready-Shea of the NII who were attending for the first time.

AGENDA ITEM 2. Minutes of Meeting 64

- 2 2.1 The minutes of the last meeting were approved for issue, subject to amendment P2 – last sentence of para 3 should read ‘..the NDA were into decommissioning and not into new build.....’
- 3 2.2 Matters arising
The query raised at the November 05 meeting by Ms Allis-Smith, regarding CO2 emissions, had been passed to the WCSSG on 6 April 06. Barry Snelson had taken the question and had supplied a response, this information was available on the WCSSG web-site.
Ms Allis-Smith said that they had problems looking at the subcommittee areas of the web-site – this will be passed back to the secretariat. She also commented that the publicity on the web-site for the sub-committee meetings was not sufficient – adverts in newspapers were needed as well.

AGENDA ITEM 3. CSR Summary Report

- 4 Mr Parker reminded the committee that last year hard copies of this report had been issued. This year only a summary was being published, because of the changes that had taken place within the industry. The report was on the BNFL web-site. A set of principles had been defined in 2001/02 – the company was assessing its performance against these 8 principles, the report gives the last 5 years performance as a bar chart against them. Performance is better for some, no improvement for others. The intention for the future is to produce a full report with the financial reports, aligned to the financial year.

AGENDA ITEM 4. Discharges and Monitoring – BNGSL Reports

- 5 Mr Parker said the 2004 BNGSL monitoring report was now available, and apologised for it not being available for the meeting in November 2005. This was the first report produced by the Sellafield site following the company split and had taken longer to produce than anticipated.
- 6 For the 2005 report, because of a slight mismatch in meetings, the main WCSSG had already had the EA's briefing on the 2005 data at the 6 April 2006 meeting.
- 7 The main theme was reduced reprocessing rates - due to the Thorp closure (following the incident). Aerial discharges were all within the limits, the maximum was 28% of any limit for radionuclides. Krypton discharges were reduced. Waste handling (encapsulation and vitrification) continued at a high level, it had been a record year for container production. Discharges of Cs137 and beta increased, partly due to an abnormal discharge of Cs137 from the Waste Vitrification Plant and partly due to increased plant maintenance activities in the Fuel handling Plant.
- 8 Monitoring results from the monitoring programme (Qtr 1 to 3 plus some Qtr 4 results) showed 13-14 μSv , with 16 μSv predicted for the full year. This was partly due to decreases in discharges, and some natural variation.
- 9 Non-radioactive discharges – NO_x discharges were similar, showing some reductions.
- 10 Liquid discharges showed reductions due to reduced reprocessing activities. The maximum was 34% for any given radionuclide. Tc99 discharges were 7TBq in 2005 (from 14TBq in 2004) and were expected to stay at a similar level for the rest of the reprocessing programme.
- 11 The consequence was a slight reduction, in the critical group dose to 210 μSv , primarily due to reductions in Tc99 concentrations and some Pu/Am in shellfish. There is some variability over years in shellfish which affects critical group dose.
- 12 Liquid non-radioactive discharges generally showed a decrease. Chromium was increased as floc was processed through EARP. Mercury discharges increased due to increased concentrations in the caustic soda supplied to Sellafield. The method of calculating the discharge agreed by the Environment Agency, is to use the concentration provided by the supplier and multiply it by the mass of caustic soda used.
- 13 LLWR at Drigg – liquid and aerial were similar to 2004, these were difficult to distinguish with the Sellafield background.
- 14 Professor Haywood queried the quantity of mercury in the discharges. Mr Parker advised that the site had a limit (of 30kg/yr) for this and had to report against the limit. The discharges reported were 1.44kg in 2004 and 3.8kg in 2005. Mr Hargreaves asked how

the discharges compared with other industries – were they small or large. Dr Emptage replied that the majority of the discharge came from process chemicals, using low chemical content. The EA has information gathered into an inventory of releases, any chemical process using caustic soda is likely to discharge mercury.

- 15 Professor Haywood asked how much mercury there would be in the marine environment if we did not put any in there. A note to be added to the minutes putting discharge in context. Mr Hargreaves commented that looking at other discharges, the oil industry puts more alpha into the sea.

NOTE: The natural mercury inventory of the Irish Sea is approximately 1,200kg. The man-made discharges, to all seas round England and Wales, is about 700kg per year, of which Sellafield contributed 3.8kg in 2005.

- 16 Dr Emptage referred to the late publication of the 2004 report, and asked if the 2005 report would be published earlier. Mr Parker replied that the same mechanisms were in place, BNGSL will have to strive to have the report ready earlier this year - he will change the arrangements in the light of this year's report production.
- 17 Dr Emptage commented that from the minutes of the main meeting, there was a question on the headroom of limits, should this be reduced if BNGSL was only reporting discharges up to 38% of site limits. The minutes did not say that there were plant limits and throughput limits underneath the site limits (lower throughput, tighter limits), which apply more stringent controls on discharges at a plant level.
- 18 Mr Davies asked what the limits were based on – health or human considerations? How were they set? Dr Emptage replied that a number of criteria were considered – these include dose to the most exposed group, collective dose, magnitude of the discharge and understanding of plant control. Overall, the regulatory approach is precautionary with an aim that discharges are minimised through the application of best practicable means.. There is tight regulatory control. Professor Haywood said the de-minimis levels of radioactivity in food etc were much debated, but no conclusions were ever reached.
- 19 Ms Allis-Smith asked about CODEX, she believed an EU meeting in April as to have decided the Pu limit in food, but did not know the outcome. She had read the responses from BNFL and the fishing industry. She asked if anyone else in Europe was objecting as strongly as Great Britain, from the point of view of operating plants as well as accident. Professor Haywood said he would take this question away for answering.

NOTE: The revised Codex Guideline Levels for Radionuclides in Foods Contaminated Following a Nuclear or Radiological Emergency for Use in International Trade (ALINORM 06/29/12, Appendix XXXI) were adopted by the 29th Session of the Joint FAO/WHO Codex Alimentarius Commission as a final Codex text (ALINORM 06/29/41, paras. 63-66 and Appendix IV, Part 2). It was anticipated that the revised Codex Guideline Levels (CAC/GL 5-2006) would be published by the Codex Secretariat in the near future. The change in scope from routine operation to accident/incident situations was included in the European Community comments to the 37th session of the Food Additives and Contaminants Committee. Prof Haywood has not succeeded in locating the contributions of EC member states which led to the EC comments.

AGENDA ITEM 5. Health Matters

- 20 Professor Haywood advised that Professor Jones was unable to attend the meeting, but had provided a report on the ICRP consultation and scope of radiological protection. The

draft report was issued in March and was on the web-site for consultation until June 19. It recommended that regulators be empowered to define radiation exposure situations which are not regulated through legislation. For example, this exclusion could be applied to cosmic rays and the K40 content of the human body which gives more radiation exposure than controllable emissions – eg man-made radioactive nuclides. Mr Hargreaves commented that the radioactivity of fly-ash from coal fired power stations was higher than coal due to technical enhancement. He asked if these should be subject to regulatory control. Professor Haywood said for radon sources, the ICRP draft suggested that dwellings below 200 Bq.m⁻³ are candidates for exemption - equivalent to a few mSv/yr and that similar exposure situations should be considered case by case. He asked what do they consider as 'low risk' and commented that there were procedures for cardiological checks, investigative procedures which were high risk to operators and patients, but low risk to the patients compared with the condition which was being diagnosed.

The ICRP web-site can be found at <http://www.icrp.org/>.

- 21 Professor Jones had also provided a paper on unplanned releases to the Sellafield site from 1950 to 2000, assessing their significance against the INES scale (which didn't exist in the earlier years). They had found that they could do this assessment, but no conclusions were drawn. The last event (INES 3 or over) was in 1984. A website reference was provided - <http://www.iop.org/EJ/journal/JRP>
- 22 Dr Emptage asked if the radionuclide concentrations of < 1Bq/kg for alpha and 10 for betagamma applied only to solids, if it applies to liquid it might be significant due to the changes that can occur in concentration from liquid to solid.
- 23 Ms Allis-Smith raised the issue of the union compensation schemes, referring to 2 B30 workers who had worked there in just face masks – it was now a full protection area. There was a higher risk of cardiological risks showing in Japan/Chernobyl. She asked if BNFL was considering changing or reviewing compensation schemes in the light of recent information.
- 24 Professor Haywood said the compensation scheme attributes probability to the risk of exposure compared to natural risk. It was a company scheme, this question would have to be referred to the main group, this was an occupational exposure issue. He suggested that there were probably insufficient results at present, but was sure the company was keeping a watch on the information emerging- there might be an effect but no conclusions had been reached yet. With cardiovascular problems and cancer there were similar risks. Adding in cardiovascular diseases high natural rate of both, the rate of presentation of employees/ex employees showing will be quite high. Mr Hargreaves said research on relative death rates in and out of industry had already been compared, there have been a lot of comparisons – but there is not yet enough data for positive conclusions.

NOTE: For atomic bomb survivors, the Radiation Effects Research Foundation found that the excess relative risk of non-cancer disease was always less than unity regardless of dose. This implies that, in any given case, it was always more likely that the disease had a natural cause. This conclusion would be even stronger for doses accumulated over periods of years.

- 25 Cataracts were also discussed, Ms Allis-Smith said cataracts were also found in radiation workers. Professor Haywood said these were thought to be the result of high doses at one time, not sustained exposure. Professor Haywood will take this issue to the main committee.

NOTE: Jacobson B S (2005) Radiation Protection Dosimetry 113(1): 123-125, a US study of retired actinide-exposed radiation workers indicated a doubling dose of 250 mSv for induction of cataract by external radiation (95% confidence limits 100 and 500mSv).

AGENDA ITEM 6. Items of Environmental Interest

- 26 Mr Parker offered some items from the last 6 months of newsletters which were worth noting.
CORWM, which was consulting on UK waste management, had held consultations and published their draft recommendations on the web-site. There was a 2 page summary of a 2 year consultation. Geological disposal was proposed as the best approach, but social problems were expected. Safe interim storage was needed – with consideration of security, longevity of stores and avoidance of repackaging. Sellafield was an important factor in this – having material already in store. The next phase of the consultations was community involvement.
- 27 The accident at Chernobyl happened on 26 April 1986, there had been some coverage in the press of the 20th anniversary. The cloud had passed over Cumbria and had been rained on while passing, causing fallout – this was still showing in the current monitoring programme.
- 28 I129 aerial discharges from Thorp had showed an anomaly – this had been reported at the April WCSSG meeting, and a review had been held. The problem was due to a calibration of analysis technique, there had been no breach of limits on I129 discharges. There was a fuller report in the WCSSG minutes.
- 29 In the incidents section of the WCSSG, an abnormal water level in the AGR fuel pond had been mentioned, there was water in the sumps. An investigation was ongoing.
- 30 SIXEP had reported a cooling water incident on 30 January 2006. This came under IPC and was reported on in the WCSSG minutes.

AGENDA ITEM 7. Works Update presented by Mr T Parker

- 31 With regard to contaminated land, BNGSL were trying to speed up investigations. This features in the NDA's strategy, requiring contractors managing their sites to increase the understanding of the problem and advice to the general public. The next step is to put the project out to general tender, looking for wider experience, with a view to placing a contract by 1 September 06. Groundwater monitoring was reviewed at the end of last year and a radically revised programme was started at the beginning of 2005. The site had to report the risk from small landfills under the RSA authorisation, a report was being produced for the EA for September.
- 32 BNGSL had completed the 2000th shipment of PCM from the LLWR magazines to site for proper storage. All the PCM had to be moved by the end of 2006, this reduces the inventory at the LLWR.
- 33 At the LLWR, there are a large number of iso-freight containers with uncompacted waste – which is poor use of storage capacity. These are being moved back to Sellafield for

- better compaction, this will be completed 12 months early.
- 34 A major milestone was achieved with the stored MAC (the Tc99 source) all treated. The backlog has been processed, we are now left with only small arisings from the Magnox reprocessing. The TPPB process introduced in 2003, reduced the Tc99 discharge and the new MAC was diverted to High Level Waste. This has drastically reduced discharges. Old plants which stored MAC can now move into decommissioning.
- 35 With regard to the Thorp incident, where 83m³ of liquor was spilled into a cell, the NII had advised that they intend to prosecute. Immediately following the discovery of the leak, additional environmental monitoring was introduced as a precaution, and that monitoring continues. The results to date indicate that there was no harm to the environment as a result of the leak. Thorp is working towards a restart, working to meet the NII recommendations. Dr McCready-Shea commented that the Thorp restart was under discussion.
- 36 Magnox was operating and on target. HLWP was operating, over 500 vitrified product containers were produced last year – their best performance to date, 73 containers have been produced so far this financial year. This year's target is similar to last year's. Effluent plants are operating to plan.
- 37 Mrs Sherwen commented that the repackaging/compacting of containers at the LLWR being done at present was OK because they were above ground, and asked if this would still be able to be done if the waste was underground. Mr Davies explained there were phased and un-phased approaches – it would probably be left up to the community hosting the repository to say what they wanted. The repository may be left open so there is more flexibility, allowing future generations to have a say or it might be closed now, which could leave a burden for future generations. In Sweden the line of thinking was that if they do it now there is no burden, but if they leave it open there is the opportunity to use improved technology.
- 38 Mr Hargreaves commented that after 600 years there is less radioactivity in the waste than the uranium being dug out in the first place. Professor Haywood said the longer lived items become more dominant, but are only a small fraction of the total. Dr Emptage said they would be different elements, so would behave differently in the environment. Mr Harvey commented that CORWM had held a workshop on the benefits of retrievability over 300 years.
- 39 Ms Allis-Smith asked if any repair option for Thorp had been decided on, and had the NII approved it. Mr Parker said there was a plan, but he was not sure what decision had been made, recommendations were being looked at, key steps had been and were being carried out. Dr McCready-Shea commented that with a prosecution pending it was difficult for the NII to comment.

AGENDA ITEM 8. Regulatory matters.

- 40 Dr McCready-Shea for the NII, said with regard to the work on contaminated land, the NII were pleased about the tender and project. They were working closely with the EA – a joint regulatory task team had been set up, which had held its first meeting last week. The team will monitor the project against its deliverables, and will run as long as the project.
- 41 Professor Haywood commented that contaminated land was currently an NII responsibility and asked when it would become an EA responsibility. Dr Emptage

- replied that the NII lead on land, the EA on groundwater – there was ‘joined-up’ thinking in this so that BNGSL was not pulled in 2 ways.
- 42 Ms Allis-Smith asked if the contaminated land monitoring was all within site or in the estuaries as well. Mr Parker advised that currently it involved the site and its immediate surroundings. The next phase of the contaminated land project was to investigate the inner Separation area and complete a whole site assessment – but not a wider area.
- 43 Dr Emptage for the EA, reported that there were now new multi-media authorisations in place for the LLWR and Windscale sites following public consultations - a modern Radioactive Substances Act authorisation was in place for all sites. With regard to the Sellafield authorisation which came into force October 2004, a periodic review had been undertaken, the intention was to keep the authorisation current and fit for purpose. The outcome of the review was that a few minor amendments were found to be needed, these were carried out following the due procedures. On 1/4/06 a varied authorisation was issued (this also affected the environmental monitoring programme and other items which are specified under the authorisation). The documentation was published and reported to the WCSSG. Dr Emptage drew attention to the environmental monitoring programme, which was now in line with the monitoring objectives put forward to the WCSSG. A significant change is a reduction in food sampling. This has removed duplication of the FSA sampling. The EA will report on the impact of this next year, however there will be no loss of coverage as the FSA are still doing their programme. This brings the food monitoring programme in line with other areas where BNGSL does the monitoring and the EA do check monitoring. The second change is that enhanced groundwater monitoring is being required. This is because far less is known about what’s in the ground and moving in groundwater than other environmental pathways.
- 44 Krypton85 in air monitoring will also be introduced in the coming year in response to a recommendation from the Article 35 inspection in 2004.
- 45 There will also be monitoring of the surface water courses and associated sediment around Sellafield, in response to the findings of the EA’s Aqueous Waste 2005 inspection. The EA are also requiring BNGSL to undertake enhanced contamination monitoring at Sellafield, following the particle find in 2003 and the Aqueous Waste 2005 inspection, which raised issues of particulate control in discharges. Results of analysis of the particle found in 2003 have indicated that it is a large particle of calcite with specks of uranium. Further investigation is being undertaken to establish whether the uranium is irradiated, where the particle came from, and whether there are further particles out in the environment.
- There have been other increases/reductions in the amount of monitoring to bring it into line with IAEA recommendations.
- 46 Dr Emptage said the EA has been working closely with Sellafield with regard to the future strategy for the site. There was a need to engage as early as possible with the site, looking at overall effluent strategy, what is the best way to cleanup the site and manage discharges. Projections of discharges from the site for the next 20-100 years were being looked at, tools and models developed. These are showing discharges are not expected to challenge current site limits, and predicted discharges were consistent with meeting UK discharge strategy 2000 aims and targets. He was very encouraged by this work and will continue to work closely with the site, he felt this was the best way to achieve the best environmental outcomes. Dr Emptage suggested this might be a subject for presentation

to the EHSC – a forward look rather than a backward look. Mr Parker said he would take this suggestion forward.

- 47 Mr Parker clarified what was going on with regard to contaminated land and monitoring, the site has been monitoring groundwater close to the major sources on site, this work was now being broadened out, the spatial spread of sampling and of radionuclides was being increased. Dr Emptage commented that ‘filling in parts of the jigsaw’ was the aim.
- 48 Mr Hargreaves asked if they were looking at long or short term contaminants. Dr Emptage said long-lived contaminants, mainly tritium and technetium, were being found beyond the site perimeter. Strontium was being found within groundwater within the site perimeter. Mr Parker said there were a wide variety of sources, so a wide range of radionuclides are in the monitoring programme. Tritium and technetium were the most significant, as the most mobile. Some contaminants stay close to the source.

AGENDA ITEM 8. Update on Sellafield monitoring programme

- 49 Mr Parker reminded members that the proposed changes to the monitoring programme objectives and targets had been presented to the EHSC, and advised that 2 weeks ago a paper was presented to an international radiological protection conference, on how the programme is affected. He offered to provide a copy of the paper to anyone wanting one. The paper was well accepted. The site is now operating to the new programme.
- 50 Professor Haywood asked if the result of reducing the monitoring programme for food was to release resources to work on groundwater monitoring. Mr Parker confirmed this. Dr Emptage said the site needed to establish a way forward from here, there is a requirement for an annual review of the environmental monitoring programme to be taken under the authorisation. A major review had been taken last year to get to where the site was now, he was anticipating that this year’s review would be more minor. He suggested that if significant changes were anticipated in particular to the monitoring objectives, this should be discussed at the committee, but if there were only minor issues (changes over the year), the committee should just be kept informed – this was accepted.

AGENDA ITEM 9. WCSSG update

- 51 Professor Haywood reported that at the 6 April 06 meeting, the Chairman, David Moore had secured approval for additions and changes to the structure and functions of the stakeholder group in order to ensure that the NDA is scrutinised as thoroughly as the operators. He noted that the two recently added WCSSG meetings had not been successful in raising the community profile of the stakeholder groups. He therefore proposed that all four annual WCSSG meetings should be scrutiny meetings. In July and January, the WCSSG would scrutinise operators and NDA in some detail but subcommittees would not normally need to send reports to the meetings. This shift in focus would also make it easier to provide feedback on the national stakeholder dialogue which is growing in intensity and scope.
- 52 The increasing frequency and complexity of consultations has obliged WCSSG to review how it deals with them in order to speak with a clear voice. The Community Engagement Co-ordination Subcommittee will prioritise consultations and other subcommittees may be asked to input to CECSC’s responses. The issues related to the operations of the Sellafield site formerly discussed at WCSSG

- are now to be addressed by a Sellafield Site Stakeholder Group reporting to the WCSSG.
- 53 Since many small consignments of radioactive waste from hospitals and universities eventually make their way to West Cumbria, an additional subcommittee on transport of this waste is to be established. This was prompted by reconsideration of an incident from 2002 when a flask containing a used medical cobalt source from Leeds was not properly closed, causing excessive gamma ray dose rates close to the vehicle. A committee was agreed, to establish a link to the liaison committee of the Ramsden Dock in Barrow-on-Furness, where spent fuel is brought ashore.
- 54 Professor Haywood said the structure of the WCSSG was 'live' and responding to the burdens placed on it. However, the people were involved in it part-time, and more people will get involved, there was a risk it could become an unwieldy structure.
- 55 Dr Emptage asked what the changes would mean for the EHSC. Professor Haywood thought there would be little effect as the EHSC was a specialist subcommittee looking at environmental issues and reporting back. It was not clear how or if the site groups would need input from the EHSC - our functions had not changed.

AGENDA ITEM 10. Any Other Business

- 56 Mr Harvey said he was disappointed in the attendance at the meeting. Mr Emmerson commented on the lack of public attendance as well. Dr Emptage suggested that as most members of the public were at work at the time the meetings were held, changing the meeting time might increase attendance. Professor Haywood pointed out that some of the committee members were there in their working capacity, changing the meeting time would mean them working in the evening. Mr Parker said he was not aware of anyone complaining about the timing of the meeting, were there people wanting to attend who couldn't do so?
- 57 Mr Emmerson said it enhanced the credibility of the sub-committee if there was public attendance. Professor Haywood commented that this sub-committee probably had the most difficult material to deal with, it was a technical meeting. Mr Davies warned of the possibility of 'stakeholder burnout', there were a set number of stakeholders in the community, the same people go to the same meetings – some prioritisation has to be done at times. Mr Parker suggested the sub-committee had benefited from holding meetings in public, even though public attendance had been minimal, he would not wish to see lower technical representation if the meetings were moved to another time. It was suggested attendance by the press was the most important, to get information out into the public domain, but it was accepted that the EHSC shouldn't do anything different to the main group or other sub-committees.
- 58 Professor Haywood suggested that a draft press release could be looked at and amended at the meeting and issued to the press to raise the profile of the sub-committee. This was accepted and Professor Haywood offered to produce the draft press release. This to be added as an agenda item to the next and subsequent meetings.
- 59 The meeting closed at 15.15.