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WORKING GROUP ON ACTION TO CONTROL CHEMICALS

Minutes of the 17th meeting of the Working Group on Action to Control Chemicals held on 10th November 2009, Crowne Plaza, Birmingham NEC

Members Present

Steve Fairhurst (Chair)
 Steve Bailey
 Robin Chapman
 Rosemarie Hutchinson
 Steve Binks
 Ching Aw
 Alastair Hay
 Steve Williams
 David Farrar
 Martie van Tongeren
 Julian Peto (ad hoc member)
 Robin Howie (ad hoc member)

Observers

Frances Pollitt
 Rob Miguel

Apologies

Tony Fletcher
 Len Levy

HSE Officials Present

Nicola Gregg (Secretariat)
 Anna Rowbotham (Secretariat)
 Garry Burdett
 Martin Gibson
 Dil Sen
 Paul Evans
 Andy Darnton
 Gareth Evans
 Brian Crook
 Chris Barber
 Peter Woolgar
 John Healy

1	Introductions and apologies
1.1	The Chairman welcomed everybody to the 17 th meeting of the committee. He welcomed ad hoc members attending for the item on asbestos and officials from HSE and HSL attending for specific items. He welcomed Rob Miguel (TUC representative on ACTS) who had accepted an open invitation made to ACTS to attend this meeting. Apologies were received from Tony Fletcher and Len Levy.
2	Administrative issues
2.1	The Chairman informed WATCH that Nicola Gregg would be standing down as committee secretary after this meeting, to focus more on her principal role in HSE's new Chemicals Regulation Directorate (CRD). Jane Wilder (CRD) is to be the new secretary for WATCH. Jane has been leading the secretariat for the Advisory Committee on Pesticides for several years and will also continue in that role. In the future, CRD will be exploring ways to unify the secretariats for the various committees for which CRD provides the secretariat function.

	The Chairman thanked Nicola for her enthusiastic and successful contribution as WATCH secretary. The committee endorsed this view and warmly applauded Nicola.
2.2	The Chairman asked for any declarations of interest related to the items on the agenda. Steve Williams and David Farrar declared interests in the item on metal working fluids. Martie van Tongeren declared an interest in the item on asbestos.
2.3	WATCH secretary Nicola Gregg reminded WATCH members to send in their expenses claim forms in time for the end of the financial year 09/10.
2.4	Dates for next meeting The secretary suggested 23 rd , 24 th or 25 th February 2010 as possible dates for the 18 th WATCH meeting to be held in the CRD office in York. The secretary agreed to finalise the date of the next meeting by correspondence with members after the meeting.
2.5	Adoption of agenda WATCH members agreed to adopt the proposed agenda (WATCH/Agenda/2009/3) with a switching round of the order of the items on metalworking fluids and the future of WATCH and ACTS, to accommodate the planned early departure of a committee member.
3	Minutes of 16th meeting
3.1	Members had been invited to comment by correspondence on the draft minutes of the 16 th meeting. No comments were received. Members agreed the minutes of the 16 th meeting (WATCH/Min/2009/2) as being finalised.
3.2	Matters arising/Secretary's report The Secretary informed members that in relation to minute reference 7.18 of the secretary's report, where an action was on the Chairman to provide clarity from HSE on the future role of ACTS and WATCH, further developments had resulted in this topic being an item on this agenda (item 5) and to provide a clear position on this matter at this meeting. The Chairman agreed to provide verbal feedback to the committee in the item on the future of ACTS and WATCH
3.3	The Secretary informed members of new developments on the consultation on Gamma Butyrolactone (GBL) discussed under item 6 of the 16 th meeting in June 2009. In August, the Home Office announced that GBL should be classified as a "Class C" substance that had restriction implications for the sale of the substance to the general public.
4	Asbestos: Refinement of a control banding approach to control of asbestos exposure situations
4.1	The Chairman opened the item by welcoming Francis Politt (Health Protection Agency and secretary to the Committee on Carcinogenicity), Andy Darnton (HSE, Statistics Branch), Helen Ratcliffe (HSE, Asbestos Policy Unit), Martin Gibson (HSE, Field Operations Directorate, Edinburgh) and Garry Burdett (HSL, Fibres Unit). He reminded members that, over the course of a number of meetings, WATCH has been focusing on the question of what can be said about cancer risk in relation to exposure to relatively low levels of different asbestos fibre types. During and immediately after the October 2008 meeting, the WATCH committee prepared and agreed a summary statement reflecting its position, as in Annex 2 to the item. As part of this conclusion, the committee had recommended that further work be carried out to develop a control

	<p>banding approach to advise on risk management measures appropriate for situations involving potential exposure to different levels of asbestos fibres in the air. Since the October 2008 meeting HSE/HSL had tried to carry forward its interpretation of concept advocated by WATCH. Garry Burdett and Andy Darnton had developed and presented to WATCH a spreadsheet-based model aimed at providing those without expert knowledge with information about the likely extent of exposure/risk without mitigation and the appropriate control strategy for different forms of work that might be undertaken with asbestos-containing materials. The spreadsheet-based tool was discussed by WATCH in June 2009 and a further progression of it had now been presented for this November meeting.</p> <p>The Chairman then reminded members that a few weeks previously (in mid-October), the secretariat had received correspondence from a WATCH member, raising a number of new issues and also reminding WATCH of issues raised previously that had not been fully addressed. The member suggested that further progress on the control banding approach could not be made until a number of fundamental technical matters, and also policy issues relating to the acceptability of risk, had been addressed. In preparation for this meeting, in mid-October the secretariat sent this submission to all members, with a request for views on the issues raised and how they might best be dealt with by WATCH. No responses had yet been received.</p> <p>The HSE/HSL staff developing the paper for this item had now also raised issues about whether or not the conclusions put forward by the committee in October 2008 had been correctly interpreted in developing the control banding approach (paragraph 6, cover paper).</p> <p>The Chairman asked WATCH to consider the issues highlighted in the cover paper in conjunction with the issues raised recently by the member, and to try to formulate a clear plan for taking this item further forward. The Chairman invited comments from WATCH members.</p>
4.2	<p>Specific comments from members</p> <p>A WATCH member expressed frustration that WATCH had been slow in progressing its work on asbestos. In his view WATCH should analyse the available data and, on this basis, make recommendations on measures that would ultimately help protect the health of workers in the work environment. He considered that two years ago the committee had been clear that the health of some groups of workers (e.g. builders, maintenance workers) could be under continuing threat due to work activities that potentially involved significant exposures to asbestos, but that from thereon the committee had largely pursued somewhat academic debates, the outcome of which had not added much in terms of driving towards better protection of the health of these workers. Although the control banding concept had seemed a good idea at the time, further exploration work by the HSL/HSE team suggested that realisation of the concept was more complex than originally thought: it appeared that a certain level of understanding of the underlying science and data would be required to use such a tool effectively. There appeared, therefore to be a mismatch between the level of sophistication of the tool as currently developed and the intended target users. It would not necessarily occur to people carrying out small-scale maintenance or improvement activities that control measures of a particular type might be needed for these tasks. These people could not be expected to use a model of the kind that had been developed thus far. The WATCH member regarded that much simpler approach, for example using a</p>

	colour-coded system would be more helpful in terms of delivering effective advice on exposure control.
4.3	Another WATCH member expressed a different opinion. In his view, the earlier deliberations by the committee on the occupational epidemiological data and the Hodgson & Darnton (H&D) model had been valuable in terms of achieving an understanding of the quality and reliability of the underlying evidence base and its potential use in risk assessment. The suggestion by WATCH of a control banding approach and the development of an associated tool had been an appropriate progression of the issue that aligned with HSE's more general approach to control banding within COSHH. In respect of identifying key types of workers likely to be at particular risk nowadays from asbestos exposures, the member did not think that the committee would have arrived at its understanding without having deliberated the issues at some length. Overall, he was encouraged by the progress made thus far.
4.4	Another WATCH member agreed that the committee's work on asbestos had been valuable and could be used to develop practical risk management measures for the workplace. He reflected that HSE is frequently approached by employers to provide advice on working with asbestos; many employers apply the available HSE guidance avidly, but still might observe no apparent change in a potential asbestos-exposure situation and therefore request further advice and guidance on how further improvements can be made. Any further advice or guidance WATCH could offer in this respect would be valuable. Given the limitations of the data available, WATCH had made good progress in advancing understanding of the issue. Any recommendations the committee could make on appropriate exposure control and reduction might not only assist HSE, but benefit society as a whole.
4.5	Reflecting back on epidemiological data WATCH had examined, another member expressed surprise at the poor quality of the available data, particularly in relation to exposure, and suggested that more exposure information was now needed to acquire a better understating of the health risks faced by key types of workers. With this in mind, the member considered studies of a type currently under way, analysing fibre content in the lungs of workers in various circumstances, might offer helpful insights into the actual exposures received by workers past and present and allow some comparisons to be made.
4.6	The Chairman invited views from other committee members who had not yet spoken. A WATCH member acknowledged that the committee had devoted considerable effort deliberating and considered that it would perhaps be best now to take the progress that had been made to date, with the associated uncertainties and limitations, and devise a clear plan for moving forward to a practically useful outcome. The committee's position on risk assessment (as expressed in Annex 2) could be reviewed and revised if and when new data emerge in the future. The member felt that if the committee did not now move forward in this way, there was a danger that debate around some of the technical and philosophical issues could continue indefinitely, without any practical outcomes.
4.8	Another WATCH member commented that it was evident that there was a large body of information, expert opinion and uncertainty. In order to take action on this item, a critical decision needed to be made. The issue was therefore, whether the committee makes recommendations on exposure control now, based on progress made so far, or whether this is deferred until some point in the future, when more data offering further insights, become available. The member pointed out that if the committee decides to defer

	taking a position on exposure control now, the rationale behind this decision must be communicated clearly to the relevant stakeholders.
4.10	Another member commented that his perception of the situation surrounding relatively low-level exposures to asbestos had changed over the course of WATCH considering this issue, affirming the view that current exposure control guidance might be inadequate and that there is a need for further action. He agreed, therefore, that the committee should now try to move quickly towards its conclusion. Whilst the control banding approach seems good in principle, further clarification is needed on how the approach can be made more 'workable'. The member also suggested that the issues raised by the WATCH member by correspondence in October should also be re-visited with a view to bringing the item to a conclusion.
4.11	A further WATCH member considered that the control-banding tool developed thus far was appealing and promised to have useful, practical applications. As is the case with all models, the tool has limitations and in future could be refined based on new data. Nevertheless, the use of the tool now could have practical benefits and measures for implementing it should not be delayed.
4.12	<p>General discussion</p> <p>The Chairman thanked members for their comments. He invited the member who had submitted the mid-October material to comment. The WATCH member questioned the basis for the committee making the apparent decision, at the October 2008 meeting, to limit the use of the H&D model to a lower limit of exposure of 0.1 fibres/ml.years, indicating that the concept of applying a limit of applicability had not been formally discussed by the committee. Given that the H&D model was widely used, over a wider range of potential exposure levels, and Andy Darnton's demonstration that post-2000 data reinforced the model, he asked on what basis the committee might believe that the use of the model should be restricted in this manner? He considered that extrapolation of the model to predict risk at lower exposures was feasible, provided the associated uncertainties were properly characterised and communicated.</p>
4.13	A WATCH member reminded all that members of the committee had discussed different aspects of arriving at a WATCH position on asbestos out of session after day 1 of the October 2008 meeting, but had then brought suggestions in front of the committee on day 2. Following discussion at the meeting, and consultation by correspondence between 29 October and 15 th November 2008, the drafting of a formal conclusion had been completed and the position agreed by all members of the committee. His understanding was that members considered that risk estimates should only be made for exposure levels within the range of the existing data, as reflected in the table in Annex 2. Members were not confident in the validity of predicted risks achieved by extrapolating beyond the data range. The level of 0.5-1 fibres/ml.year was the lower limit of the existing dataset.
4.14	The Chairman recapped on the key points that emerged from discussion so far and raised a number of fundamental issues for the committee's consideration. Firstly, it is important that some reassurance is given (e.g. by ACTS or HSE) that there will be uptake and use of a control banding tool before WATCH makes a commitment to developing it further. Then, if the tool incorporates risk predictions for very low levels of exposure and aims to achieve exposure control to a level deemed commensurate with an "acceptable risk" level, this takes the issue outside of remit of WATCH by introducing socio-political considerations that will need to be resolved elsewhere. With respect to the mid-October submission by the WATCH member, the Chairman noted that in

	<p>the discussion thus far members had expressed the view that the issues raised should be addressed systematically. In this context, members could re-consider the table presented in Annex 2, giving the estimated lifetime risks of asbestos-related lung cancer and mesothelioma per 100,000 individuals for a 5-year duration of exposure from age 30 to different concentrations (10, 1 and 0.1 fibres/ml.year) of various forms of asbestos. WATCH needed to consider what statements it could make about the risks posed by lower-level exposures. The Chairman noted that some members had expressed the view that new research would be valuable. In this respect, the committee needed to consider what types of research, generating new data, would be particularly helpful. The Chairman invited comments from the committee on this summarised list of potential actions.</p>
4.15	<p>A WATCH member considered that a key question was how happy would WATCH be to extrapolate the H&D model further downwards to estimate the risks of cancer at exposure levels lower than in the table in Annex 2. The Chairman added that in considering this issue, the committee should additionally consider the purpose for which such extrapolations, if performed, were being made. He reminded members that, after much discussion, the committee had added the caveat to the conclusions reached at the October 2008 meeting that the predicted risk estimates should not be taken to be reliable absolute risk values (Annex 2). The context of deriving positions via such extrapolation was therefore important.</p>
4.16	<p>A WATCH member considered that the scientific work being carried out by the committee on this issue could not yet be brought to a close. For instance, from what had been said in discussions in recent WATCH meetings he felt that it is possible that new, good quality data from ongoing research may emerge in the next 18 months that will enhance understanding of the issue. In the meantime, an interim report should be produced by WATCH, in order that some practical risk control measures could be implemented for at-risk occupational groups. The member agreed with comments raised earlier in the discussion that the available data were of poor quality, but did not consider that this should impede the establishment of a basis for some practical actions. In his view, it appears that some workers are still unaware that the routine tasks they carry out are potentially putting their health at risk. This message, and practical advice to follow in encountering such situations, must be urgently communicated to these workers, in a clear and coherent manner, so as to protect their health.</p>
4.17	<p>A WATCH member agreed that irrespective of issues relating to the quality of the underlying science, it is apparent that certain groups of workers may unknowingly be exposed significantly to asbestos at work. WATCH should relay to HSE that simple messages should be delivered to these workers informing them about the risks and giving advice. Another WATCH member commented that employers should already be aware of their responsibilities towards the health and safety of workers and how risks should be managed. Paul Evans (HSE, Chemical Industries Division) added that HSE had issued a large amount of guidance on asbestos to workers and the onus was, to some extent on employers to look for and use such information. Another member pointed out that in reality, in many cases this is unlikely to happen – small building firms may be unaware of the available guidance and may not instinctively look for it. An observer added that workers were very confused by the legislation on health and safety and the associated guidance. HSE needed to ensure that key messages and guidance, presented in a suitable format, is getting across to the right workers.</p>
4.18	<p>A WATCH member agreed that if the committee was to commit to further</p>

	<p>advancement of the control banding tool, acceptance of its potential value and ideas on how this could be incorporated into an overall policy on controlling exposure to asbestos at work would be needed from HSE. Without this, further development of the tool would not be productive.</p>
4.19	<p>Research – analysis of lung fibre burden</p> <p>A WATCH member informed the committee that studies were currently being conducted to analyse lung samples from individuals with pneumothorax (e.g collapsed lung). Questionnaires were being used in the study to establish their occupations and other key facts that could inform on potential asbestos-exposure situations. Data from this study was expected soon. This should indicate the lung fibre burden of different occupational groups. If high fibre levels are not found in the lungs of these cases, then this would provide some reassurance that for a range of occupations of interest, exposures to asbestos are nothing like as high as appears to have been the case in the past.</p> <p>He also commented that the lifetime risk of developing spontaneous mesothelioma (e.g not linked to known asbestos exposures) is estimated to 1/1500 (e.g. 0.06%) for men and women. The risk is considerably higher than it was 30 years ago, particularly for women, the risk then being estimated at 0.02%. It is unclear why there appears to have been a large increase in cases of spontaneous mesothelioma. It is possible that cases of mesothelioma occurring 30 years ago, for example in people employed as teachers, may have been misdiagnosed as lung cancer; if so, interpretation of trends in spontaneous mesothelioma risk are confounded..</p>
4.20	<p>He commented that most cases of mesothelioma today are due to exposures to asbestos that occurred in the 1950s and 1960s. It is certain that exposure via the general environment today is considerably less than 40-50 years ago, such that the number of new cases of mesothelioma occurring in the future is expected to decline.</p>
4.21	<p>A WATCH member expressed unease about the robustness of the evidence associating the background (“spontaneous”) occurrence of mesothelioma with exposures to asbestos. Even if it is proposed that these cases of mesothelioma are due to exposures to asbestos that may have occurred 30 or 40 years ago, when general environmental levels of asbestos were substantially higher than today, little can be established with confidence about the extent and duration of asbestos exposure in such cases. Knowledge from occupational studies indicates that cumulative exposure is an important determinant of disease. The assumption that there is a link between background “spontaneous” cases of mesothelioma in the population and past exposure to asbestos may not be valid and he questioned the extent of the evidence to support this hypothesis. Factors other than asbestos, such as particular patterns of physiology and genetics, may be important influences on the occurrence of mesothelioma in some individuals. This is an important perspective that needs to be brought into the discussion.</p>
4.22	<p>A WATCH member returned to the subject of analysing lung tissue samples. He suggested that further findings from such studies might advance understanding, but he did not think the committee should wait for such findings to emerge before reaching some conclusions. He pointed out that these studies could have certain limitations. The lung burden of fibres may be misleading because it is not clear exactly how mesothelioma develops. The findings from such research could raise questions as well as answer them. He asked whether any insights from studies that are currently on-going could be summarised for the next WATCH meeting. In respect of further research,</p>

	<p>another WATCH member informed the committee that the analysis of lung tissue samples to determine fibre burden using electron microscopy techniques was an expensive process. The cost was a limitation on the numbers of samples that can be examined. In an attempt to overcome this problem, he informed members that Garry Burdett's team at HSL were conducting research to enable examination of lung samples using less costly and troublesome lower resolution scanning techniques. Although use of this approach might miss some of the finer fibres in lung samples, a larger number of samples could be analysed. One of the key questions being explored by the study is how the lung burdens of workers nowadays (e.g. young builders) compares with that of similar types of workers in the past.</p>
4.23	<p>Another WATCH member asked how feasible it was to obtain human lung samples for research purposes. The member who reintroduced this topic replied that it was very difficult to obtain such tissue, due to legal and ethical considerations, thus limiting the extent to which investigations of asbestos lung burdens could be carried out.</p>
4.24	<p>A member wondered if further data generated from current studies of lung burden of fibres might be useful for incorporation into the H&D model, making it more robust in relation to the exposure estimates used in the model. He argued that if the addition of new data enhanced confidence in the exposure estimates connected to the risk values at the upper end of the dose axis, this would in turn be one factor in enhancing confidence in the reliability of any extrapolations made towards the lower end of the dose axis.</p>
4.25	<p>Developing a plan of action for further work</p> <p>The Chairman asked WATCH to consider its views on what might be the best course for further action. To this end, he suggested there were three options, that are not mutually exclusive:</p> <ul style="list-style-type: none"> (i) WATCH considers that it has arrived at a definitive position or positions; and hence does no further work in relation to such a position(s). (ii) WATCH considers that it should do more work on specified scientific/technical aspects of the "asbestos" topic. (iii) WATCH refers elsewhere (e.g. ACTS or HSE) the work it has done and the issues that have arisen that are outside its remit, in order to obtain a steer on further action <p>He invited WATCH to consider these options with the aim of devising a clear plan of action. He also referred members to page 2 of the cover paper where there was a fundamental problem to consider that had not yet been discussed, that being the proposed control banding approach does not align with an idealised model for linking risk to control.</p>
4.26	<p>Extrapolation using the H&D model</p> <p>To begin the consideration of a potential action plan, the Chairman asked WATCH to consider whether or not it considered that there were issues still unresolved in respect of the performance and use of the H&D model that needed to be further addressed by WATCH, irrespective of what the model might ultimately be used for? He noted that several members had suggested revisiting the table presented in Annex 2 to explore the merits of extending the prediction of risk beyond the range in the table.</p>
4.27	<p>A WATCH member asked to what extent moving from one band to another in</p>

	the control banding tool as currently developed was influenced by the uncertainty in the underlying H&D model, and whether the level of uncertainty in the control banding approach could be assumed to be one order of magnitude.
4.28	Andy Darnton reminded WATCH that members had expressed reservations about using the H&D dose-response relationship to extrapolate to deriving risk estimates for exposure levels substantially lower than the exposure range covered by available occupational epidemiological data and had therefore proposed that a control banding approach could be a viable alternative, ie dealing with the relative scale of potential risk in different situations, rather than in numerical estimates of absolute risk for each situation. He highlighted the point that if each control band spanned an order of magnitude, in terms of the potential exposure/risk range covered by the particular control strategy for that band, then when the H&D risk estimates are considered in the context of appropriate control bands, the derivation of potential risk and the associated control strategy would not be expected to be wrong by more than one band.
4.29	A WATCH member commented that existing data suggest that the lifetime risks of developing mesothelioma were 6% and 2% respectively for carpenters and builders who were first exposed to asbestos in their trades 30 or 40 years ago, for 10 years before the age 30. Although these risks cannot be linked to quantified exposure data, it is known with a high degree of certainty that some workers received heavy exposures to asbestos by virtue of their jobs. He suggested that the reliability of a risk estimate for these groups of workers under these circumstances can be regarded to be accurate to within one order of magnitude.
4.30	The Chairman asked whether there had been any indication from historical studies of occupational cohorts that the lifetime risk for workers in other settings (mining, manufacturing industries) had been greater than 10%, ie considerably greater than for the carpenters and builders referred to above. A WATCH member replied that lifetime risks of up to 20% had been seen historically for some workers carrying out activities involving very high exposures to asbestos. Nevertheless, it is interesting that if this highest level of lifetime risk is compared with the lifetime risk of 2% for builders (above), the difference is only one order of magnitude. The member disagreed with the risk estimates presented in the annexed document on an assessment of the potential consequences of an asbestos incident at a primary school, suggesting the risk estimates were unrealistically high when seen in the context of the above analysis.
4.31	A WATCH member offered an observation on the control banding approach. The process involved the consideration of potential risk in different situations, order to assign an appropriate level of control for that situation. However, once the risks associated with different potential exposure scenarios have been ranked, further debate about the extent to which extrapolations can be made at the low end of the exposure spectrum becomes irrelevant because in reality there are only a limited number of different exposure control options available. In his view, the committee had done enough analysis and should now focus attention on translating its perspectives into practical control advice. As registered licensed asbestos workers are already covered by asbestos legislation, the committee should focus on workers falling outside the scope of existing legislation who may encounter asbestos materials during their work.
4.32	The Chairman suggested that, from the balance of views expressed, the issue of the extent to which WATCH considers that the H&D model can be extrapolated reliably to lower exposure levels than in the table in Annex 2 should be addressed at the next WATCH meeting. He invited the member who

	raised this issue in correspondence to lead on preparing for such a discussion and to prepare a supporting paper to be circulated to members before the meeting. The member agreed to this proposal.
4.33	<p><i>Exposure to asbestos in buildings</i></p> <p>A WATCH member suggested there were two distinct groups of people who could be exposed unwittingly to asbestos in the work environment – those potentially coming into direct contact via their working operations (e.g. builders or maintenance workers; or with reference to an issue considered by WATCH several years ago, perhaps teachers unknowingly causing damage to asbestos boards) and those who occupy buildings contaminated with asbestos. It was likely that both groups of people would be exposed to asbestos at levels that were lower (e.g. 0.001 f/ml.years) than the range covered by historical occupational cohort data. This necessitates extrapolation. Consideration should also be given to the ages of different people likely to be exposed to asbestos, for example young workers aged 16, or children, and how suitable age-related extrapolations can be made. Another WATCH member considered that the issue of asbestos exposures arising from contaminated buildings is outside of WATCH's remit and an issue for other arms of government; however, it was pointed out that many such buildings are places of work for some.</p>
4.34	<p>Another WATCH member pointed out that there were two potential sources of exposure in buildings: that arising from a particular incident involving disturbance of asbestos and that arising from a constant background level of contamination (e.g. fibres released from damaged or frayed material that is undetected). He suggested that studies indicate that typical background levels of contamination in buildings can be around 0.005 fibres/ml. Garry Burdett disagreed with the value quoted and said that the typical, measured average asbestos concentration in buildings is an order of magnitude lower, around 0.0005 fibres/ml. He suggested that the figure of 0.005 fibre/ml might apply to a building where a specific contamination incident had occurred. He highlighted that accurate averages for airborne asbestos exposures in buildings during an individual incident were difficult to obtain in practice due to sampling and timing issues.</p>
4.35	<p>A WATCH member reiterated that buildings in general constitute a work environment and therefore presented as a relevant area for further exploration by WATCH. He suggested that if there is a lack of clarity at present, then potential exposure to asbestos in buildings could be explored as a specific research question. Another WATCH member agreed that further research to summarise what is known about asbestos exposure in buildings may be helpful.</p>
4.36	<p>An observer asked if the intention was to advocate the measuring of airborne asbestos in buildings, before and after work activities have taken place, as a matter of course? A WATCH member replied that it was feasible to carry out buildings surveys, in line with MDHS 100 (Methods for the Determination of Hazardous Substances, Health and Safety Laboratory publication number 100: <i>'Surveying, sampling and assessment of asbestos-containing materials'</i>), the industry standard in the context of assessing risks to people in buildings. This approach would be the most cost-effective one, rather than pursuing other surveying options. In his view, MDHS 100 surveys should be carried out routinely.</p>
4.37	<p>A WATCH member emphasised that workplace exposure scenarios encountered today were very different to those in the past traditionally</p>

	<p>associated with asbestos. For modern-day situations there were a number of problems associated with quantifying the levels of exposure involved. These problems were effectively illustrated in the scenario provided in the package of papers on the assessment of the potential consequences of an asbestos incident at a primary school. In this incident air monitoring was carried out 3 days after the window replacement work had ceased. Although measurement results were expected to be considerably lower than those made around the time the work was done, no quantification of exposures prior to monitoring had been carried out.</p>
4.38	<p>The Chairman asked representatives from HSE/HSL whether it would be feasible to compile relevant knowledge on the levels of asbestos measured in buildings in general for the next WATCH meeting. Helen Ratcliffe (HSE, Asbestos Policy Unit) asked whether this would be restricted to information currently held by HSE or would encompass gathering information from other government departments, a task that could prove more challenging. The Chairman replied that it was reasonable to ask that HSE summarises only what it already knows about this issue, based on the information it holds. Garry Burdett offered to summarise the information held by HSL.</p>
4.39	<p>The Chairman suggested that another strand of work would be to identify the specific work activities that could potentially give rise to particularly significant asbestos exposures. It was suggested that HSE should approach the Construction Industry Advisory Committee (CONIAC) to gather information in this respect. Helen Ratcliffe expressed reservations about this - any task that potentially disturbs asbestos, causing a release of fibres into the air, could be regarded as dangerous. Characterising all the potential scenarios would be a difficult process. A WATCH member commented that his expectations for such a piece of work would be some detailed information about the relevant tasks and scenarios, described using terms in common usage by the trades involved (e.g. trade jargon used by jobbing builders).</p>
4.40	<p><i>Interim report</i></p> <p>In relation to the three options for further action set out in point 4.25 by the Chairman, a WATCH member indicated that Option 3 - referring some issues to another forum – was important. He proposed that for now WATCH might put on hold any unresolved scientific issues, take stock of current knowledge and consider how this can be practically applied. He objected to the idea of deferring such applicability considerations to subsequent WATCH meetings. He suggested that WATCH should draft a ‘communique’ summarising its position that can be forwarded to other bodies (e.g. ACTS, HSE).</p>
4.41	<p>Another WATCH member agreed that the perspective gathered by the committee should now be communicated further and that the preparation of an interim report could facilitate this. Such a report would also help the committee reflect on the progress it had made.</p>
4.42	<p>A WATCH member considered that it would be more useful if, rather than consulting ACTS at this point, WATCH engaged with key individuals in HSE involved in policy work on asbestos in order to get a clear steer on how the knowledge the committee had gathered could be best applied in the practical sense. For example, if the committee developed further the control banding approach, the means by which the tool could be used within Asbestos Essentials could be explored via HSE’s policy team. He suggested that this could be facilitated by convening a small working group of individuals from WATCH and HSE/HSL with the aim of further developing the control banding approach into a practical tool. The Chairman invited members to notify him and Garry Burdett of their interest in participating in such a the working group.</p>

4.43	An observer supported the previous idea that there was also merit in WATCH relaying its findings on this issue to ACTS, via an interim report. He considered that important issues had been raised in relation to different contemporary exposure scenarios and the influential factors. For example, simple tasks carried out in buildings such as shutting windows can disturb otherwise dormant asbestos materials causing fibres to become airborne. The control banding approach proposed by the committee could be useful in the context of specific tasks, if it could predict the number of fibres these tasks could potentially generate and transpose this into a meaningful estimate of risk and appropriate control.
4.44	The Chairman confirmed with WATCH that members agreed that the secretariat prepares an interim report summarising the committee's progress to date on asbestos and suggestions for further action; and disseminates this to ACTS and the most relevant people in HSE.
4.45	<p>Control banding</p> <p>A WATCH member considered that further work could be done using the control banding model to explore the question of whether current HSE guidance provided in Asbestos Essentials and licensing regulations secures adequate control of exposure and hence risk. This would entail exploring the control banding approach from a reverse perspective, to see whether current control advice can result in consistently low exposures. Garry Burdett indicated that such an analysis was technically feasible. He added that the <i>performance</i> of any exposure control measures that might be advocated was an important consideration in this context.</p>
4.46	The Chairman asked whether there were some typical examples of the control advice already available that could be tested this way. A WATCH member replied that examples of control advice, grouped into categories was incorporated in the control banding tool (Annex 3). He clarified that the objective of conducting this reverse analysis was to use the control banding model to give reassurance that the existing exposure control advocated is adequate. The Chairman invited Garry Burdett to lead on this analysis.
4.47	The Chairman clarified with WATCH that it regarded jobbing builders and maintenance/repair workers as key groups of workers that could potentially receive particularly significant exposures to asbestos during their work. A member added that other organisations or bodies (e.g. CONIAC) might also be asked if they could identify specific worker groups potentially under such threat.
4.48	<p>The Chairman thanked members for their comments and brought discussion on the item to a close. He noted that members had made a number of suggestions for how this WATCH item could be progressed further forward. He summarised these as an action plan:</p> <ul style="list-style-type: none"> (i) The position established by WATCH at the October 2008 WATCH meeting should be revisited at the next WATCH meeting in February 2009. The purpose would be to examine whether or not additional risk estimates for lower level exposures, particularly to the amphibole forms of asbestos, could be made. WATCH should also further develop and clarify its view on how the H&D model should or should not be used to derive positions on risk. (ii) An interim report, summarising WATCH's progress on asbestos to date, should be drafted by the WATCH secretariat and sent to WATCH, ACTS and relevant people in HSE, to

	<p>invite responses. The report will incorporate a summary of the action plan proposed by WATCH.</p> <p>(iii) A working group of WATCH (and ACTS) members and HSE/HSL people would seek to further develop the control banding model for asbestos into a practically applicable tool.</p> <p>(iv) In so doing, the group would examine the scope for applying the control banding tool to test whether current advice on exposure control can be applied to give consistently low exposure scenarios.</p> <p>(v) WATCH advocated that simple advice be issued to workers likely to encounter asbestos materials in work-related tasks (e.g. builders and allied trades). WATCH indicated that this message should be relayed to HSE to ensure that a sustained campaign of awareness-raising and advice ensues, targeting these workers.</p> <p>(vi) WATCH advocates further research (collecting existing information and possibly pursuing new data) to more fully characterise what is known about exposure to asbestos in buildings. HSE/HSL will report back on this at the next WATCH meeting.</p>
4.49 ACTIONS	<p>(i) The relevant member to prepare WATCH for dealing with 4.48 (i) at the next WATCH meeting (see 4.32)</p> <p>(ii) The WATCH Secretariat to prepare an interim report summarising the committees progress to date on asbestos to date and suggesting further actions and to disseminate this to ACTS and relevant people in HSE, copied to WATCH. This to encompass 4.48 (v) above.</p> <p>(iii) WATCH members to indicate to the chairman their willingness to participate in a working group aiming to further develop the control banding tool. As part of its work, the group to explore 4.48 (iv) above</p> <p>(iv) HSE/HSL to summarise the knowledge it has on airborne levels of asbestos in buildings for the next WATCH meeting</p>
5	Future of ACTS & WATCH
5.1	The Chairman reminded WATCH that from the last meeting there was an action for further clarification to be obtained from HSE on the future of ACTS and the potential consequences for WATCH. Because of the nature of developments since then, the Chairman invited a WATCH member who is also a member of ACTS to report to WATCH on developments.
5.2	The ACTS/WATCH member reminded the committee that there had been a series of interactions between the HSE Board and ACTS relating to concerns about the HSE Board response to ACTS' proposed future workplan. ACTS members met Judith Hackitt on 30 September. The member considered that this meeting had helped to resolve some issues and misunderstandings about expectations, leading to a constructive discussion taking place. HSE indicated to ACTS that it would welcome the committee adopting a much broader remit than it currently had, covering all chemical substances (including biocides and pesticides) and associated issues. ACTS had now been invited to re-draft a workplan reflecting a broader remit. If the revised draft workplan was approved by the HSE board at its next meeting, in November, it was suggested that a wider consultation be undertaken across government advisory groups for chemicals to explore how a reconstituted ACTS could effectively operate with a broader remit. The member informed WATCH that he would be attending the HSE Board meeting as an observer and would reflect key developments back

	<p>to WATCH.</p> <p>In respect of the consequences for WATCH, the member informed the committee that it had been suggested that WATCH should operate as a stand-alone committee, rather than a sub-committee of ACTS. He reported that it is generally considered that WATCH has a certain standing, such that it could exist and operate on this basis.</p>
5.3	<p>The Chairman thanked the ACTS/WATCH member for the update and asked others present who had been involved in this issue if they had any additional comments. An observer informed the committee that ACTS members had also been asked if they could help in the <i>delivery</i> aspects of HSE's programme. A mixed response was received: some members had indicated that they could become involved in delivery, whereas others could not.</p>
5.4	<p>The Chairman asked whether the envisaged reconstituted ACTS could task WATCH with exploring the science associated with specific issues. A WATCH member replied that it seemed likely that the reconstituted ACTS could suggest, but would not be able to make demands on WATCH, if WATCH became a stand-alone committee.</p>
5.5	<p>A WATCH member, also a member of ACTS, informed the committee that at no time during the exchange of dialogue between the HSE Board and ACTS had the suggestion emerged that WATCH should be disbanded. He emphasised to members that the actions ACTS had taken over the past few months to seek clarity on its function and future role from HSE had not been intended to destabilise WATCH in any way. Irrespective of any changes in status, ACTS favoured on-going co-operation between itself and WATCH, with information and issues being exchanged between both committees. ACTS was not a scientific advisory committee and therefore there would not be any conflict or duplication of interest or activities.</p>
5.6	<p>Members requested sight of ACTS's revised workplan. The Chairman indicated that the WATCH secretariat would liaise with ACTS to obtain the workplan and circulate this to members when it was confirmed as appropriate to do so.</p> <p>The Chairman thanked members for the information and comments and brought the item to a close.</p>
5.7 ACTIONS	Secretariat to obtain and send to WATCH the revised proposed ACTS workplan
6	Metal working fluids programme of work: End-of-year-1 progress report
6.1	<p>The Chairman opened the item by reminding members that following WATCH's deliberations at the June 2007 meeting on the potential health risks caused by exposure to metal-working fluids (MWF) arising following investigations at Powertrain Ltd in Longbridge, Birmingham, HSE had established a three-year programme of work to explore this issue further. He welcomed Peter Woolgar (HSE, Manufacturing and Railways Sector, Birmingham), John Healy (HSE, Field Operations Directorate, Birmingham), Gareth Evans and Brian Crook (HSL, Occupational Hygiene Unit) and Chris Barber (HSL, Centre for Workplace Health). He invited members of the MWF team Gareth Evans, Chris Barber and Brian Crook to provide the committee with an update on progress made during the first year of the MWF programme</p>
6.2	<p>Presentations on progress on MWF programme in year 1</p> <p><i>Overview of MWF programme</i></p>

Gareth Evans reminded WATCH that the MWF programme had started in September 2008 and comprised a number of discrete projects (focussed on different "Stages"). The aims and objectives of each stage were :

Stage 1.1 - To summarise evidence drawn from UK, European and USA studies into the causes of outbreaks of respiratory disease in metal-working companies using MWF.

Stage 1.2 - To agree national diagnostic criteria for extrinsic allergic alveolitis (EAA) and asthma caused by MWF.

Stage 1.3 - To use a simulated MWF sump model to investigate the growth of bacteria in conventional and bioconcept fluids

Stage 1.4 - To develop a database containing information on chemical constituents of MWFs and MWF additives.

Stage 2.0 - To develop an action plan for investigation of any future outbreaks of illness caused by work with MWFs

Literature review of outbreaks of respiratory illness caused by MWF (Stage 1.1)

Chris Barber reminded members that the idea of conducting a literature review had emerged during discussions at the June 2007 WATCH meeting. Questions had been raised as to why very few cases of disease had been seen in mainland Europe despite the widespread use of MWF, when numerous cases of disease in UK and USA had been linked to the same operational processes. The aim of the literature review was to identify the approaches other investigations had taken towards incidents of disease outbreaks. An extensive review was carried out of published literature and government reports using search criteria to identify all outbreaks of disease arising in MWF exposure situations. Search terms related to respiratory conditions (asthma, bronchitis, breathing difficulties, irritant, hypersensitivity, pneumonitis etc) and to MWF (metalworking fluid; cutting fluid etc.) were used. A total of 1346 references from 10 reference search engines (occupational health, medicine etc.) were identified. Over 90% of these were USA studies, 7% from the UK and 3% from Europe. It was found that 60% of studies reported only respiratory disease, 30% both respiratory & skin, and 10% studies only skin disease. Following a review of abstracts by a multidisciplinary study team, only 29 papers were identified which focused specifically on the investigation of outbreak incidents and were reviewed in detail. Comparisons were made across these studies of demographics, sump type, contamination, and the type(s) of MWF used.

Of the studies identified, 58% involved outbreaks at manufacturing plants with most sites being similar to the Longbridge plant with respect to size and numbers of exposed workers. Although the studies were scrutinised to identify any common traits, no clear answers emerged about the possible cause of the outbreaks. MWF contamination was frequently raised as an issue. Analysis of microbiological evidence from the studies indicated that MWF contamination was common, with different types of bacteria being present, and that in respect of the characteristics exhibited the respiratory diseases appeared to be fungal, bacterial, mycobacterial in nature. No single micro-organism emerged as clearly being linked to MWF contamination and respiratory disease. An investigation of respiratory disease by sump and MWF type indicated that 50% of sites had a central sump. Although no specific type of MWF emerged from the study as particularly likely to be associated with disease (other than being water-based – see below), larger sites appeared to have problems in keeping large sumps clear of bacteria.

Older studies of oil-based MWF were also examined in the review but no links to respiratory disease were apparent. This suggested that the water content of MWF was an important factor in outbreak cases.

Overall, the review indicated that there were only a few published studies connected to European outbreaks. This was surprising, given that for instance in 2002 Germany produced the same number of cars as the USA. The reasons behind this geographical variation are not clear. It is possible that studies of outbreaks from the USA dominate the literature because there is broad awareness and detailed scrutiny of this issue (e.g. by NIOSH) in USA. The difference could also be due to difference in health surveillance & health reporting networks (e.g. different healthcare systems and work practices/controls). It is possible that cases of respiratory disease linked to MWF have occurred in Europe but have not been identified via health surveillance, and therefore not covered in publications.

Clinical case definitions for EAA caused by MWF (Stage 1.2)

Chris Barber reminded WATCH that the aim of Stage 1.2 was to examine case definitions for respiratory ill-health linked to exposures to MWF, to establish diagnostic criteria and the certainty with which these can be applied. These criteria would help to deal more effectively with any future outbreaks in the UK. A review of diagnostic approaches and criteria indicated that six different diagnostic criteria had been used in the context of USA outbreaks. No consistency was found and most of the criteria have been developed without a supporting evidence-base. Although some non-invasive criteria have been developed, these included some tests that are not currently readily available in UK. Overall, little comparative data was available to verify diagnostic criteria and there was currently no 'gold-standard'.

Further work planned included :

- (i) Collaboration between HSL and Birmingham Chest Clinic
- (ii) Seeking ethical approval to utilise medical information collected during the Powertrain investigation
- (iii) Establishing an expert panel to review those cases that have follow-up data
- (iv) A comparison of the performance of published diagnostic criteria (where possible) versus expert panel judgement.

Simulation of microbial growth in conventional and bioconcept MWFs (Stage 1.3)

Brian Crook informed WATCH that laboratory-based studies in Stage 1.3 of the programme had been carried out in parallel to the literature review in Stage 1.1. There was an increasing trend within the MWF industry towards using bioconcept MWF as a possible alternative to conventional MWF. HSL was asked to investigate bioconcept fluids to provide HSE inspectors with independent scientific advice about the claims made for this product. Bioconcept MWF is a fluid optimised to encourage the growth of *Pseudomonas pseudoalcaligenes* (called the 'lead germ') under high pH conditions (>pH 9.0). The manufacturers claim is that the presence of the lead germ prevents the growth of other potentially more hazardous bacteria (e.g., *Pseudomonas aeruginosa*). Unlike conventional MWF, it is claimed that bioconcept MWF do not therefore require the use of biocides to control the growth of opportunistic

	<p>bacteria.</p> <p>The aim of the laboratory study was to investigate the growth of bacteria in a bioconcept fluid versus a biocide-treated conventional MWF, identifying the best-case and worst-case scenarios in term of microbial growth. Flask-based systems and mini-rigs (simulating a re-circulating system) were used to simulate good and poor management of the MWFs involved.</p> <p>For bioconcept MWF it was found that pH and emulsion concentrations remained stable under well-managed circumstances but changed quickly under poor management conditions. The lead germ dominated in well managed systems but rapidly declined under poor management conditions, being replaced by <i>Pseudomonas aeruginosa</i>. Endotoxin levels in well managed bioconcept fluid were high (~104 EU/ml) within weeks and rose to high levels (~105 EU/ml) under poor management conditions. These studies demonstrated that a small reduction in alkalinity triggered the growth of <i>P. aeruginosa</i> and a decline in <i>P. pseudoalcaligenes</i>.</p> <p>Conventional biocide-containing MWF prevented bacterial growth for an extended period (>14 weeks). In such MWF bacterial growth was only observed after significant contamination of the MWF with tramp oil (20%) and swarf. With such MWF, adjustments to pH and emulsion concentration were not required. In the biocide-treated conventional fluids the concentration of endotoxin remained very low and increased only in badly managed MWF after fourteen weeks. The results indicated that pH may be a critical factor in shifting the growth of bacterial species in conventional MWF contaminated with tramp oil and swarf.</p> <p>It was concluded from the laboratory studies that although high levels of 'lead' germ are present in well-managed bioconcept MWFs, the situation changes markedly if this type of fluid is not managed well. A critical pH range may exist that, if attained, permits growth of many more species of bacteria in bioconcept and conventional MWF, but further investigation is needed. There is limited knowledge about newer types of MWF (called biostable fluids) and how well the growth of micro-organisms is controlled by these fluids. There is also a need to investigate how management of these different MWFs in machine sumps affects the growth of micro-organisms and the levels of endotoxin</p> <p><i>Developing a protocol for incident investigation of ill health caused by MWFs (Stage 2.0)</i></p> <p>Gareth Evans informed WATCH that an Incident Investigation workshop was held on 9 March 2009, involving a number of national experts as well as Dr Loren Tapp from NIOSH in the USA who had direct experience of investigating ill-health attributed to used MWFs. This workshop identified the potentially conflicting needs of investigations to achieve better understanding, apply health care, and support enforcement and prosecution. It was proposed that any operational guidance developed for potential use in any future incidents might also require input from senior levels in HSE to steer between these potential conflicts.</p>
6.3	<p>The Chairman thanked the team for the presentations and opened the item for general discussion.</p> <p>A WATCH member asked if sites had processes in place for topping-up the active biocide concentration in MWF? Chris Barber replied that there was a</p>

	<p>wide variation in the maintenance processes used on different sites. The WATCH member suggested that most sites had either one sump or many sumps. This would, in turn, determine the likely profile of exposure in workers. He expected that outbreaks could, to some extent be characterised on the basis of these two types of site.</p>
6.4	<p>A WATCH member asked if job-related information was available for workers who had presented with respiratory disease linked to MWF? He asked if it was known whether all the reported cases had worked directly with MWF? Chris Barber replied that a comprehensive database had been gathered during the course of the Powertrain investigation that could be explored to address such questions. The only limitation on this database was that it had been compiled from the perspective of an incident investigation, not a well-designed occupational epidemiological study. He also pointed out that EAA could present as a number of forms, each with different symptoms: 'acute' having flu-like symptoms, an 'intermediate' form and a 'chronic' form in which permanent lung scarring occurs. This presented difficulties for characterising disease on the basis of respiratory symptoms.</p>
6.5	<p>A WATCH member asked how many workers at the Powertrain plant had become unwell on account of respiratory disease and visited their GP. Chris Barber replied that, initially 12 cases of EAA in workers from the plant came to light, raising concern. Around 800 workers were then screened using questionnaires, 400 of which then went on to have more detailed examinations. Around 150 workers were subsequently referred to the Birmingham Chest Clinic.</p>
6.6	<p>A WATCH member asked whether the temperature of the MWF affected the growth and viability of bacteria. Brian Crook replied that temperature was not an important factor, with ambient temperatures being maintained at most sites.</p>
6.7	<p>Peter Woolgar informed WATCH that the use of bioconcept MWF by industry was presenting HSE with a dilemma. Although there is no evidence that the use of this fluid has given rise to adverse health affects, the concept stems from the unconventional use of bacteria. Its effectiveness relies heavily on good, effective management systems being maintained.</p>
6.8	<p>A WATCH member asked if the use of bioconcept MWF offered any process-based advantages over the use of conventional MWF? Brian Crook replied that the manufacturers are claiming that there are process advantages but what these are is not apparent. One argument is that exposures to biocides are avoided by the use of bioconcept fluids</p>
6.9	<p>Gareth Evans informed WATCH briefly about work that was planned under the programme for Year 2. Activities included :</p> <ul style="list-style-type: none"> (i) A critical review (completing information gathering from European ill-health reporting systems & networks) – Stage 2.1 (ii) Diagnosis of occupational lung disease caused by MWF – Stage 2.2 (iii) Laboratory studies of microbial growth in MWFs (Examination of criticality of pH and examination of biostable MWF) – Stage 2.3 (iv) Study of devices for monitoring contaminated MWF (e.g. workplace evaluation of portable devices to monitor microbial contamination – Stage 2.5
6.7	<p>A WATCH member asked what is the typical pH of MWF? Brian Crook replied that the intended pH of MWF was 9.2 (e.g. highly alkaline), but could sometimes fall to pH 8.9. The member expressed surprise and expected this to potentially cause other problems, for example, there may be skin problems</p>

	associated with dermal exposure to MWF at this pH.
6.8	The Chairman informed WATCH that further updates on the progress of the programme would be provided at future committee meetings. He reminded members that the suggestion had been raised at previous meetings that a representative from the UK Lubricants Association be invited to attend a WATCH meeting to provide members with insights on the different components of MWF. He asked members whether or not they still supported this suggestion. Members affirmed this. A member suggested that a representative from a European industry association may offer insights into the situation in Europe. The Chairman thanked members for their comments and brought the item to a close.
7	Date of next meeting
7.1	The Chairman thanked everybody for their contributions to the meeting. The Secretary reminded members that dates proposed for the next meeting to be held at HSE's Chemicals Regulation Directorate site in York were 23, 24 and 25 February and the selection of a date would be pursued by correspondence. The meeting closed at 3.30pm