

**Control Banding Workshop Follow-up Session**  
**February 1, 2007**  
**Meeting Summary (submitted by Anne Bracker)**

A Control Banding workshop follow-up session was held on Thursday, February 1, 2007 at Rensselaer Hartford. The purpose of the session was to give participants who had been trained in the control banding model a chance to share their experiences (pro and con) with using the model. The participants had attended a training program on November 16<sup>th</sup>, 2006. A panel of stakeholders was invited to attend the session as well. The panel was asked to address the question- "What are the implications of using Control Banding in the United States?" The agenda is attached.

Thirty six workers, managers and planning committee members attended the follow-up session.\* Workers and managers from thirteen (13) worksites attended the program. Seven (7) of these worksites sent teams, six (6) sent individuals. Of the sixty eight participants (including planning committee members) who attended the November 16<sup>th</sup> training program, thirty one (45%) returned for the second workshop.

**Activity: Your experiences (pro and con) with using Control Banding**

The workshop began with a small group activity (attached). Planning committee members were seated at tables with worksite representatives. Dr. Morse asked the groups to discuss the Control Banding activities they had launched at their workplaces. They were then asked to identify the most valuable part about using the model, the barriers and what could be done to improve the model. After meeting as small groups for thirty minutes a representative from each group reported back to all the participants.

Many of the participants had tried using the control banding risk assessment model at their workplaces. The participants used both the "pen and paper" version and COSHH Essentials e-tool. For example:

- a biotech firm used the model to evaluate control strategies for small quantities of laboratory chemicals
- an aerospace company evaluated several tasks: masking (toluene and styrene), hand sanding (metal alloy), painting, machining and metal coating
- a medical devices manufacturer reviewed processes involving solvents (isopropanol) and adhesives (cyanoacrylates)
- a small manufacturer was encouraged to use control banding to evaluate a wire brushing task (methylene chloride)
- a lab completed a risk assessment for several analytical methods
- a materials science company evaluated tasks involving talc and machining fluids

Other participants presented the control banding model to co-workers or managers when they returned to work. Very few participants went directly to the Direct Advice factsheets.

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\* Sixty eight workers, managers and planning committee members attended the November 16<sup>th</sup> Control Banding introductory workshop. Workers and managers from thirty four (34) worksites attended the program. Fourteen (14) of these worksites sent teams, twenty (20) sent individuals.

### **The most valuable part about using the Control Banding model:**

1. Participants welcomed the concept of a simple approach to hazard classification.
  - MSDSs are often contradictory and difficult to read (especially for those with little language ability). Participants would like a standardized, reliable, consistent approach to hazard classification.
  - Employers can identify their facility's most hazardous chemicals by using R phrases to "band" health hazard groups (A-E). This approach also helps employers identify substitution options. In addition it helps to identify which component of a product is driving the higher hazard classification.
2. The model is best for new processes or tasks involving low-medium risk exposures.
  - For low- medium risk chemicals air sampling is not always required. The model offers an alternative exposure assessment strategy.
  - For processes involving carcinogens, mutagens or reproductive hazards the model goes directly to "seek special advice". For highly regulated chemicals there are strict monitoring guidelines in place already.
3. Control Banding provides a system for the documentation and validation of existing controls. The documentation provided by the on-line e-tool was particularly attractive.
4. The model is relative easy to use and could be attractive to the SME (if they recognize the need to complete a risk assessment)

### **The barriers (and potential solutions) associated with using the model:**

1. R phrases are hard to find. This was especially true for mixtures\*
  - Many MSDSs don't have R phrases. This is especially true for mixtures.
  - Some participants tried to assign their own R phrases to mixtures
    - A small percentage of a hazardous chemical frequently skewed the hazard classification. Unclear if this outcome was correct.
    - It was unclear how the dilution of a mixture would influence the hazard classification (e.g.: metalworking fluid concentrate in water)
    - Many mixtures have proprietary components, difficult to search hazard info.
    - One participant used the MSDS' health hazard wording to select the best R phrase- the classification was incorrect.

**Solution:** A globally harmonized system for hazard communication and classification would have enormous value. Health hazard information should be updated frequently. Manufacturers

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\* several participants noted that Denese Deeds had been extraordinarily helpful in overcoming this barrier

will need training on how to assign the correct R phrases (or the equivalent). Employers and employees should be discouraged from assigning their own R phrases. However, employers and employees will need training on this new classification system. “Until the whole organization takes it on as a system, it won’t be more than just a toy”.

2. The variables used to classify exposure assessment could be clarified and expanded.

- How much is used?
  - is it the amount used each time the employee completes the task or the amount used in a shift?
  - The amount ranges too broad. There is a big jump from the medium category (kilograms/ liters) to large (tons/cubic meters) category
- Frequency isn’t a variable in pen and paper version- the two versions should be consistent
- The way a material is applied is not taken into account- for example a spray vs. brush application.
- Should the model take into account representative historical exposure monitoring data if it is available?

**Solution:** The COSHH Essentials website could be updated to give the user more direction concerning some of these issues. Individuals that use control banding should always be encouraged to step back and discuss the model’s recommendations- the model doesn’t take everything into account (application method, for example). Does the model make sense for the particular task?

3. Direct advice fact sheets were hard to find or difficult to download

- Although participants had lists of all of the HSE’s fact sheets, they had trouble remembering how to download them directly from the internet.
- Some of the participants’ computers were too slow to download fact sheets
- Not all of the tasks the participants want to evaluate had a best practices fact sheet
- Some of the best practices guidance sheets were difficult to interpret- for example, is the mixing engineering control guidance sheet appropriate for a mixing task in a lab?

**Solution:** The HSE (and ultimately OSHA/NIOSH) should publish a library of searchable guidance sheets. More guidance sheets should be written and reviewed. There will be ongoing discussion on whether or not to have a prescriptive approach to controls- if there is good information on how to control an exposure, this should be clearly documented- however it is important to leave room for improvements and innovation. Control guidance should be updated frequently.

4. Some participants had questions about the control bands themselves.

- It is unclear what the difference is between “seek special advice” and “containment”... can’t get much more protective than containment.
- Some thought the controls were under-protective; some thought they were over-protective.

**Solution:** More validation studies are necessary.

## **Case Studies: A sampling of participants' experiences**

Two workplaces presented their experiences with using the Control Banding model.

**Teknor Apex:** Johnell Norton from Teknor Apex summarized his team's experience using the model to review a machining task. (Mr. Norton's team included conference participant David Theberge) Teknor Apex is a 500 employee material science facility in Rhode Island. Employees who worked near this machining task (milling) had been complaining of upper respiratory irritation and tearing eyes when they used a coolant- Rustlick WS-5050. Mr. Norton reviewed the MSDS for the soluble oil and noted that it contained triethanolamine (TEA) and severely hydro treated oil. The MSDS did not have any R phrases. According to Denese Deeds the R phrase for this product would be 36/38, a Health Hazard category "A" chemical. (Note: the oil would not be classified as a carcinogen because it contains an extremely small concentration of benzene). Mr. Norton explained that the company dispensed the material from a machining sump (medium quantity). The boiling point of the material is 100°C (medium volatility). The material is used constantly (1 times a day for 480 minutes). Plugging these variables into the COSHH essentials website led him to the "general ventilation" control recommendation. He downloaded a G100 fact sheet and gave it to his facilities manager. Because the department is moving, he has encouraged them to implement dilution ventilation (there currently is none) when they move.

Mr. Norton was unable to download the HSE's direct advice fact sheet for machining. (He kept getting an error message). This fact sheet recommends engineering controls. If employees continue to be symptomatic after the introduction of dilution ventilation he will re-visit the need for additional controls. One additional take-home message was noted- initially Mr. Norton tried to assign his own R phrases to the metalworking fluid by reviewing various MSDSs for the components in the coolant mixture.... When he did this he came up with a category C hazard classification and much more stringent control recommendations (seek special advice).

**State of Connecticut Department of Public Health (DPH) Laboratory:** Christina Downes reviewed her team's experiences with the model. Ms. Downes is a chemist with the CT DPH's state lab. Other team members include Carolyn Jean Webb and Silva Terdjianian. The team's first step toward introducing the model involved the development of an internal Standard Operating Procedure for how to apply the model at their workplace. They presented the model and the SOP to the Laboratory Safety Committee and the Quality Assurance Manager. The team piloted the model by evaluating two analytical procedures (testing methods). Both procedures involved the use of multiple reagents. The team found the R-phrases for these pure chemicals on the material safety data sheets. The control banding approach led the team to remove unused chemicals. In addition they moved more tasks to the existing hoods. The most positive result was the model led to a discussion of the factors that contribute to exposures in the lab. The team also acknowledged the value of interviewing the lab workers before they review the potential hazards of complicated analytical methods. The team used the online tool to manipulate the amounts and frequencies of the chemicals to see if there were changes in control guidance. The team found it difficult to find applicable guidance sheets for the laboratory tasks (mixing). They also found it difficult to apply the model to small quantities of VOCs.... The model quickly resulted in the control recommendation for the highest hazard chemicals.

## **Panel: What are the implications of using control banding in the US?**

Following the Case Studies a panel of stakeholders was convened. The stakeholders were asked to address the question: "What are the implications of using control banding in the US?" The panelists were:

- T.J. Lentz: Lead Health Scientist and research industrial hygienist with the National Institute for Occupational Safety and Health/ Centers for Disease Control and Prevention, Cincinnati OH
- Cindy Panioto: Connecticut Business and Industry Association staff resource for Safety/OSHA programming, Hartford CT
- David Schultz: Health and Safety Advocate for Connecticut Council on Occupational Safety and Health, Newington CT
- Tom St. Louis: Director of the Connecticut Department of Public Health's Occupational Health Program, Hartford CT
- Denese Deeds: Industrial hygiene consultant, immediate past president of the Society of Chemical Hazard Communication and an officer in the Connecticut River Valley AIHA, Woodbridge CT
- Bill Perry: Director of the Office of Chemical Hazards (non-metals) in the Directorate of Standards and Guidance of the US Occupational Safety and Health Administration, Washington DC

**T.J. Lentz (NIOSH):** As the Federal agency responsible for providing research and recommendations for improving workplace safety and health, the National Institute for Occupational Safety and Health (NIOSH) is continuously investigating and assessing promising approaches to meet these goals. Since 2002, following the *First International Control Banding Workshop* in London, England, NIOSH has been especially interested in evaluating the potential utility of control banding as a control-focused qualitative risk assessment and management tool. As part of this investigation, NIOSH efforts have evolved under three categories described below:

- **Fostering Collaboration**
  - Participating in control banding coordination committees and interest groups
  - Partnering with industry, labor, government and academia
  - Organizing and co-sponsoring the *Second International Control Banding Workshop* in Cincinnati, OH (March 2004)
  - Organizing and sponsoring the *National Control Banding Strategy Workshop* in Washington, DC (March 2005)
  - Representing the United States on a World Health Organization (WHO/IPCS) International Technical Group on control banding
  - Developing a letter of agreement involving NIOSH, the Occupational Safety and Health Administration (OSHA), the United Kingdom Health and Safety Executive (UK HSE), and the German Federal Institute for Occupational Safety and Health (BAuA) to promote collaboration on control banding research
  - Participating in the 3<sup>rd</sup> International Control Banding Workshop (Pilanesburg, South Africa) and the U.S./European Union Joint Commission Subworking group on global management of chemicals (Orlando, FL), both in September 2005

➤ **Investigating the Merits**

- Commissioning an independent literature search and critical review document providing an overview of control banding and evaluation of its strengths and weaknesses (drafted in 2005-06, currently under review)
- Demonstration projects to investigate, evaluate, and validate control banding models in the United States
  - NIOSH/OSHA/Kentucky Safety and Health Network demonstration project with chemical safety management training for small businesses in the Commonwealth of Kentucky (January – May 2006)
  - Discussion with the Independent Lubricant Manufacturing Association (ILMA) for a modified approach known as “Greenspace” for controlling exposures to metalworking fluids
  - Dow/Kaiser Permanente/NIOSH collaboration to develop task-specific hazard control guidance materials to address exposures to glutaraldehyde in health care (ongoing)
  - NIOSH/ Pan-American Health Organization collaboration with the Chilean Institute of Public Health (ISP) to provide control-focused solutions to reduce exposures to silica dust in Chile and other South American countries (ongoing)
  - Supporting the University of Connecticut Health Center’s efforts to develop and provide control banding workshops and follow-up evaluations for joint labor/management commissions and their companies in Connecticut (ongoing)

➤ **Communication**

- Development and maintenance of a NIOSH Control Banding Web Topic Page (2005) [ <http://www.cdc.gov/niosh/topics/ctrlbanding/> ]
- Development of a training DVD providing task specific guidance for controlling exposures to glutaraldehyde in health care settings (ongoing)
- Creating of a Workplace Solutions Database to provide direct advice and task-specific guidance on a wide variety of occupational safety and health issues by pulling together an extensive library of peer-reviewed resources (under development)

Building upon the collaboration involving the University of Connecticut Health Center, Federal OSHA, and NIOSH, a possible next step is to develop the materials from the training workshops into a primer for applying control banding concepts in U.S. businesses. Such a tool would hopefully have appeal and utility for a wide audience of industries, with applicability for small businesses looking for direct advice and tools for controlling hazards, and larger businesses seeking to strengthen product stewardship programs.

**Cindy Panioto (CBIA):** Ms. Panioto noted that the CBIA has been pleased to have been involved in the discussion of a new concept. She noted that the educational component was one of the most important parts of the CB model. The new concept represents a fundamentally new paradigm- control focused risk assessment. For this new idea to take hold there must be an underlying sense of trust that the system works. If the model leads to the over control of chemical exposures it will either be rejected by industry or people will relax the recommended controls because they don't trust the model. If the model under-controls chemical exposures, even occasionally, no one will trust it. Employers are concerned with liability and they want to avoid less protective situations. The model could be very useful for some newer exposure concerns, for example nanotechnology. There are not alternative exposure assessment methods for this type of exposure.

Ms. Panioto also noted that the computer based model has both positive and negative aspects. On the positive side- computers are able to keep up with a changing world. She emphasized that the technology must be used to constantly update the model in real time as new information comes in. On the down side she noted that not all workplaces have access to the internet- leaving them without easy access to the model and the associated documents.

**David Schultz (ConnectiCOSH):** Mr. Shultz began his remarks by discussing his memories of working for the United Parcel Service. He and his co-workers did not trust management when it came to health and safety issues. If a parcel would leak or spill they were told "not to worry about it". They were not given the tools to evaluate exposure risk for themselves. For workers to "buy into" this new model Mr. Shultz noted that workers need to see real changes in the workplace. The model has potential because

- it takes complicated concepts and boils them down
- it is an open system that allows everyone to see what is out there
- the risk assessment process is educational
- the process could lead to a decrease in the amount of sickness
- the process could lead to an increase in moral.

**Tom St. Louis (CT DPH):** Mr. St. Louis began his remarks by reviewing the role of the DPH in worker health and safety. He noted that his agency is involved in a variety of public health activities including epidemiology, education and consultation. His department has no regulatory authority. Given his department's limited resources he finds the CB model attractive because it provides a simple, straightforward, standardized tool to address chemical safety issues. Because the model does not require extensive expertise, the impetus for hazard assessment can be shifted back to the employer. This is attractive because many of the current options are time consuming, cumbersome and not standardized.

The model's downside is that it represents an entirely new way of thinking. Because the model does not have a regulatory basis, it may not be used appropriately. He is concerned that employers not abandon the successful previously used systems that did have a regulatory basis in favor of using the CB model, if it means that the CB model will not be used appropriately.

Ultimately the success of the model will depend on the message from stakeholders- the model could help employers manage costs and participate in cutting edge health and safety programs. The concept of this type of model could be applied to other occupational health hazards such as ergonomics.

**Denese Deeds (SCHC/CRV AIHA):** Ms. Deeds began her remarks by asking the question-would control banding lead to the unemployment of industrial hygienists? She stated that there would always be a place for expert assistance from industrial hygienists. The model would be of value for the SMEs who don't have access to this skill set. Ms. Deeds then went on to emphasize that the model helps industrial hygienists move beyond Recognition and toward Controls. For example, the model can be used as a tool to identify substitution options. For the model to work in the US she noted that we need to harmonize with others. At this time we don't have a tool to do precise chemical hazard classification and ranking. She expects that the GHS would go a long way toward achieving this important goal. During the Q&A Ms. Deeds noted that manufacturers want a universal system as well. She noted that software is being developed to help manufacturers assign the correct GHS hazard phrases and that the EU is planning to assign numbers to the standard GHS phrases. These developments will allow a US version of a control banding tool like the COSHH Essentials e-tool to be developed.

**Bill Perry (US DOL OSHA):** Mr. Perry noted that he likes permissible exposure limits because he can focus time and resources on careful documentation and risk assessment for a specific chemical. He is able to use the literature to document that a reduction in an exposure limit will lead to a significant reduction in risk. He is struggling with the control banding concept because OSHA needs to identify and document that if a specific control is implemented an acceptable exposure range and a significant reduction in risk has been achieved.

If OSHA uses a Control Banding approach (and no samples are taken) how would a compliance officer document the effectiveness of controls? Should control guidance sheets be extremely detailed? If OSHA is too proscriptive, how are new innovations encouraged? OSHA is currently exploring these issues as they develop a new silica standard for construction. For example, if OSHA states that employers have to cut bricks or drill into cement with wet methods, how do they assure that an employer is in compliance with an "effective wet method"?

Mr. Perry is encouraged that Control Banding raises people's awareness about risk factors without having to invest inordinate resources in quantitative exposure assessment. During the Q&A Mr. Perry noted that OSHA has issued an advanced notice of proposed rulemaking (ANPR) concerning the GHS. He encouraged conference participants to send in comments as OSHA moves forward with this process.

### **Wrap-up**

Ms. Bracker closed the meeting with the announcement that all Control banding workshop participants would receive a summary of the meeting. She also noted that participants would be asked to respond to a questionnaire about the utility of the model. A number of participants expressed a willingness to have Ms. Bracker visit their worksites to address some model validity questions. Nearly all of the day's participants expressed an interest in returning to a follow-up control banding workshop over the coming year.