

## DRAFT MEETING SUMMARY

### **First Advisory Meeting on Dry Cutting and Grinding of Concrete and Masonry Materials**

January 17, 2007  
Elihu Harris State Building  
1515 Clay Street  
Oakland, California

#### Attendees

Bill Benham	DPR Construction and Construction Employers Association
Bill Callahan	Associated Roofing Contractors of the Bay Area Counties
Bob Downey	Construction Employers Association
Chad Wright	Laborers Union
Diana Graham	Keller & Heckman
Dan Hull	Stihl, Inc.
Fran Ciborowski	Old Country Roofing
Fred D. Sibley	Pascal
Henry Chajet	Patton Boggs
Jamie Khan	Associated General Contractors
Joel Cohen	Cohen Group and CIHC
Joel Guth	Masonry Technology
John Girk	Nibbi Brothers Construction
Julie Trost	CCMCA
Kevin MacDonald	Townsend & Schmidt
Kevin Smith	Franklin H. Smith Masonry, Inc
Kevin Thompson	Cal-OSHA Reporter
Mark Kasel	Select Build Pacific Region
Michael Storer	Safety Support Services
Ray Trujillo	State Building and Construction Trades Council
Robert Ortiz	Nibbi Brothers Construction
Victor Thibeault	PBC Companies
Dan Bang	Kenyon Plastering
Brian Chien	Kenyon Plastering
Russell E. Hutchison	Association of Equipment Manufacturers
Erick Koberce	AEM Multiquip
Bruck Wick	California Professional Association of Specialty Contractors
Walter Bonilla	Bricklayers and Allied Crafts, Local 3
Chrisopher Becker	Hensel Phelps Construction
Brian Delahaut	MK Diamond Products
Jim Breuner	Pacific Gas & Electric
Dan Leacox	Greenberg Traurig
Dave Jackson	Bricklayers & Allied Crafts, Local 3
Morgan Nolde	Roofers and Waterproofers, Local 81
Leroy Cisneros	Roofers and Waterproofers, Local 81
Bill Meyer	Plumbers, Local 393
Richard Rocha	Laborers Training Center
Steve C Davis	LaCroix Davis
Bill Larson	PBC Companies
Jim Kegebein	Rudolph and Sletten
Brenda Roach	Unger Construction & AGC
Darin Wallace	Production Framing

Michael Pennington	San Diego AGC Safety Committee
Jim Bresnahan	Bricklayers and Allied Crafts, Local 3
Erick Skow	Conco
Tom Walsh	Sully Miller Contracting Co
Kevin Bland	CALPASC & CCMCA
Heather Borman	State Compensation Insurance Fund
Buck Cameron	Center to Protect Workers Rights
Robert Harrison	California Department of Health Services
Jeffrey Love	Bricklayers and Allied Crafts, Local 3
Juli Broyles	California Advocates
Jeremy Smith	California Labor Fed
George Netto	Teamsters, Local 287
Phil Vermeulea	Engineering Contractors Association
Don Bradway	Monarch-Kneus Insurance Services
Jack Connors	Toll Brothers
Bob Twomey	Office of Assemblywoman Fiona Ma

### **Cal/OSHA Participants**

Len Welsh, Acting Chief, DOSH (meeting chair)  
 Mike Horowitz, DOSH Research & Standards  
 Bob Barish, DOSH Research & Standards  
 Patrick Bell, DOSH Research & Standards  
 Rajan Mutialu, DOSH  
 Hans Boersma, Cal/OSHA Standards Board

### **Meeting Summary Outline**

- Summary of Major Discussion Items
- Opening Remarks
- Overview of discussion draft proposal provided at meeting
- Discussion of scope proposed in discussion draft
- Equivalence of local exhaust ventilation (LEV) and water for dust control
- Other specific operations and materials
- Fans as an alternative control measure
- Further discussion of specific operations and materials
- Respirators
- Other materials
- Additional details of the discussion draft
- Employee training

### **Summary of Major Discussion Items**

The first part of the meeting focused on the scope of the discussion draft handed out at the meeting. Labor representatives said that the scope should be broad because hazardous exposure to silica dust has been found associated with many different materials. Some suggested that in the interest of avoiding generating opposition, the scope should be limited to the language of SB 46. Representatives of particular industries suggested that certain materials should be exempted from coverage for various reasons.

It was generally agreed that, along with water, effective local exhaust ventilation should be a first choice option for dust control. It was generally agreed that fans by themselves would not be satisfactory for dust control.

There was discussion of clarifying what is and is not meant by “powered tools or equipment.” For example whether powder-actuated tools would be included, and clarifying that work with hand powered tools is not included in the scope of coverage.

It was generally agreed upon that a regulation on cutting and grinding of concrete and masonry material would not supplant other regulations applicable to hazardous dust control such as Title 8 sections 5141, 5143, 5144, 5155, and 5194, and that a note should be included in the proposal to this effect.

It was clarified and generally agreed upon that respirators could not be a substitute for use of local exhaust ventilation or water to control dust exposures from cutting and grinding of concrete and masonry materials. It was noted, however, that while ventilated tools and use of water have been shown to substantially reduce dust exposures, these methods are not always sufficient to reduce exposures below applicable Permissible Exposure Limits (PELs), and respirators would still be needed in some situations along with these methods to achieve compliance.

There were various suggestions for modifying the proposed language for employee and supervisor training in the discussion draft. There was discussion, but not general agreement, on a requirement for refresher training.

## **Meeting Summary**

### **Opening Remarks**

Len Welsh welcomed attendees, noting the good turnout for the meeting. He suggested that although concern with dry cutting and grinding of concrete and masonry materials focuses on crystalline silica, because any dust in high concentrations can pose a hazard to the respiratory system, it is probably better to think in terms of overall dust control in connection with these operations. He said he thought that the focus on control of exposures from dry cutting and grinding of concrete and masonry materials was appropriate in light of these operations’ potential to generate very high exposures to crystalline silica and other dusts.

In light of the large number of first-time meeting participants, Len Welsh provided a more in-depth than usual overview of the Cal/OSHA program and its relationship to Federal OSHA as a state plan program.

Len Welsh explained that consideration of a regulation for cutting and grinding of concrete and masonry materials originated in the last session of the legislature with Senate Bill 46 (SB 46), authored by Senator Richard Alarcon. Len Welsh said that discussions with Senator Alarcon had led him to withdraw the proposed legislation in light of the Division’s expressed commitment to pursue expedited development of a regulation through its advisory committee process. He said that in keeping with this commitment, he would attempt to set a second meeting in March, with a proposed regulation going to the Cal/OSHA Standards Board in June 2007. He said that the primary purpose of the present meeting was to flesh out basic points of agreement and disagreement between the various interested parties, with the second meeting planned to focus on the details of regulatory requirements.

Len Welsh finished his opening remarks by saying that he hoped the meeting would focus on trying to develop consensus on basic issues of feasibility and scope where possible, as well as clarifying how differences could be addressed by the Division in developing a regulation on those issues where consensus could not be achieved. He said he hoped that one potential point of consensus would be that water could be a good approach for dust control.

### **Overview of discussion draft proposal provided at meeting**

A draft proposal developed as a document to facilitate discussion was provided as a handout. It contained both draft regulatory language and lists of issues covering potential areas of controversy. Len Welsh explained that the California Professional Association of Specialty Contractors (CalPASC) had approached him with suggested language for a standard. That suggested language was shared with Jim Bresnahan of the Bricklayers and Allied Crafts, Local 3, and other representatives of affected unions. That process led to the discussion draft proposal handed out at the meeting. He noted that

it is important to recognize that the regulation to be developed would not supersede the requirement of Title 8 section 5155 to control employee exposures to crystalline silica and other dusts below applicable Permissible Exposure Limits (PELs) found in that section.

Len Welsh briefly reviewed the subsections of the draft proposal: (a) Scope and Application, (b) Definitions (which he noted remained to be filled in), (c) Use of water for dust control and exceptions of particular situations, (d) Alternatives to the use of water, and (e) Employee Training.

### **Discussion draft proposal scope**

Len Welsh asked if there were any questions of a general nature on the draft proposal. Joel Cohen asked if the Division had considered whether existing regulations for dust control and the PELs were enough to cover the operations of concern, and if perhaps educational materials might not be sufficient to address the problem. Len Welsh responded that specific requirements for specific hazards or hazardous operations is not unique, citing for asbestos and inorganic lead as examples. He suggested there likely is broad agreement in the industrial hygiene and safety engineering communities that for dry cutting and grinding of concrete and masonry materials there is a need to clarify more specifically how dust exposures are to be controlled. He said that greater specificity will provide greater certainty to employers as to what they must do to remain in compliance with Title 8 regulations and provide healthful working conditions for their employees, and to enable the Division to effectively enforce requirements for dust control.

Jim Breuner asked if there had been consideration of handling of protective clothing. Bruce Wick responded that this had been addressed in the CalPASC and Division draft proposals through employee training. Len Welsh said he hoped that such constructive flagging and discussion of various issues would continue throughout the meeting.

Joel Cohen asked if the Division was concerned that a regulation it develops might be at odds with what comes out of Federal OSHA's work on a comprehensive standard for silica. Len Welsh said that Cal/OSHA has at times in the past been in the forefront of regulatory development on particular problems. He said that typically when Federal OSHA promulgates a new or amended rule the Division responds with changes to assure the California regulation is at least as effective.

Jim Bresnahan said that dry cutting and grinding of concrete and masonry materials is going on every day. He said that five members of his local have silicosis and he does not want any more. He said the cost of use of water or local exhaust ventilation for dust control would be minimal. He said it was unconscionable that anyone would object to requiring these measures. He said that if it is not possible to have a regulation developed and adopted through the Division's advisory committee process that organized labor would go back to the legislature for a mandate. Len Welsh thanked Jim Bresnahan for bringing the problem of dry cutting and grinding to the Division's attention.

Len Welsh said there is no reason why operations generating so much dust should not be managed with effective dust control measures. He said he took the general comments offered so far as indication of questions about specifics rather than opposition to the concept of controlling exposures from dry cutting and grinding. Bruce Wick said that many CalPASC concrete and masonry contractors are already working on this problem. He said they wanted a regulation that was clear, protective, and enforceable to help establish a more level playing field among all employers doing this kind of work.

Juli Broyles asked if the regulation being considered would be in the general industry safety orders or the construction safety orders. Len Welsh said that at the moment, in the absence of compelling information to the contrary, it was not planned to limit the scope to construction. He said that dust exposures from dry cutting and grinding of concrete and masonry materials are worrisome regardless of the industry.

Russ Hutchison suggested that the scope be limited to masonry brick and block cutting. He said that the broader language of the draft scope could be viewed as including road surface milling machines for example, or jack hammers. He said he thought that the scope needed to be limited in order to be able to obtain any regulation at all. Fran Schreiber said that the regulation needed to be comprehensive in scope. She said, for example, that studies had shown the potential for hazardous dust exposures from work involving disturbance of roadway surfaces.

Len Welsh acknowledged the desirability of controlling all dust exposures, but said that the larger the scope of the regulation the more would need to be known about the different materials involved and the more difficulties that might be encountered in promulgating a regulation.

Victor Thibeault said that an overly broad scope could lead to a great deal of opposition at the planned March meeting which could interfere with the ambitious time-frame for adopting the regulation. Tom Walsh said that as a road contractor he recognized there was a problem for masonry employees, but not for the road building industry. When asked by Len Welsh for detail as to why it would not be a problem for road contractor employees, he said he could not provide any.

Bill Callahan said the standard should not apply to roofing operations. He said that NIOSH and Arizona OSHA had been working with the roofing contractors association for the last two years on control of dust exposures from cutting of roof tiles. He said that working at elevations on a sloped surface made use of water impractical given the increase in fall risk. He said that NIOSH had also not been able to recommend an effective approach using local exhaust ventilation.

### **Equivalence of local exhaust ventilation (LEV) and water for dust control**

Fran Schreiber suggested that consideration be given to making local exhaust ventilation (LEV) equivalent in the standard to use of water for dust control so that an employer could start out using either option. She said that research done by the Center to Protect Workers' Rights (CPWR) has shown that LEV can be almost or as effective as water in controlling dust exposures in cutting and grinding operations. Jim Bresnahan said that he and his colleagues were not opposed to this suggestion as long as their effectiveness is roughly equivalent.

Bill Callahan said that in its work with roofers in Arizona NIOSH had found that with use of LEV there were still exceedances of the PEL for respirable silica. Fran Schreiber asked though if LEV did not nonetheless have a significant impact on reducing exposures. Len Welsh said that significant exposure reductions from use of LEV or water did not guarantee that exposures would always be reduced below the PEL, but that this was not a valid objection to requiring their use. He acknowledged that even with use of these systems it might still sometimes be necessary to also wear a respirator to achieve compliance with the PEL.

Buck Cameron said there is a great deal of data available on the effectiveness of both LEV and water systems in reducing worker exposures to dust from cutting and grinding. He said that use of such control systems could reduce the level of respiratory protection required in some situations.

Len Welsh asked if anyone disagreed that local exhaust ventilation and water were both acceptable as first choices for dust control for cutting and grinding of masonry and concrete materials. There was no disagreement with this.

Fran Ciborowski said that with water there is increased fall risk and discoloration of the tile. Len Welsh asked her if a regulation would be more acceptable if it allowed both LEV and water as first choice options. Fran Ciborowski said that more options are better, but she was concerned whether appropriate equipment is available.

There were several comments that dry cutting of masonry is sometimes necessary to avoid discoloration or effects on construction from contraction of cement block with drying. Jim Bresnahan said that well organized contractors cut blocks wet ahead of time to allow time for drying. Len Welsh said that these comments further supported the equivalence of LEV and water for control of dust exposures.

### **Other specific operations and materials**

Daniel Bang, said most work by stucco contractors is not done with power tools and so there is little risk of hazardous exposure to silica or other dusts. Len Welsh said that the requirement for use of water, subsection (c) in the draft proposal, was limited to operations involving power tools. But Tom Walsh said that the language of the scope did not clearly exclude hand tools. Len Welsh said the Division would work to clarify this point.

Joel Cohen asked about installation of hangars into concrete using a powder-actuated tool. He asked if "power tools" in the draft standard would include "powder tools?" Kevin Bland suggested using the language of SB 46 regarding "hand-held gas or electric tools"

Len Welsh asked Joel Cohen if he had ever measured dust exposures associated with installation of hangars into concrete. He said he had not but that it would probably be low given the limited amount of time spent actually generating dust. Jim Kegebein said he had measured exceedances of the PEL for silica with drilling into concrete.

Bill Meyer said he had worked at the site where Jim Kegebein had found these exposures. He said that hangar installation into concrete on some jobs can go on continuously for months. He said Bosch sells many ventilated tools. Steve Davis said that shooting of hangars through a wetted sponge, as he had done in an asbestos situation, might adequately control the dust generated. Mark Kasel, said that upward drilling and hangar installation was probably likely to generate substantial airborne dust, while drilling down, for example into a floor, especially through another material such as a wooden sill, probably would not.

Darin Wallace said that cutting of siding and wall panels with shear panel blades did not generate much dust because the tool had only three teeth. He said in light of this that such materials should be excluded from the regulation.

Bill Meyer said that if particular operations and materials truly did not present a problem, the employers using them could rely on the exclusion in the draft for operations that did not generate exposures in excess of the PEL for silica.

Jim Breuner said in his experience jack hammering and horizontal drilling in manholes can both be very dust operations.

Fran Schreiber asked where operations and materials suggested for exclusion in the discussion draft originated. Len Welsh said they had been suggestions from CalPASC. Kevin Bland said the operations suggested for exclusion were usually very short in duration and so should not present significant exposure risk.

### **Fans as an alternative control measure**

Joel Cohen asked if fans could be another first choice option for dust control, along with LEV and water. Len Welsh said that simply moving dust around with a fan without capturing it could make exposures worse, especially for nearby employees. Bob Downey asked if fans would be excluded as a control measure. Len Welsh asked how they would be used. Joel Cohen said that they are sometimes used in welding operations to blow away fume. He said that as an industrial hygienist he liked having as many control measures available as possible. Len Welsh said that fans could easily be misused. He said there had been general agreement on equivalence of LEV and water but not fans. He said though that the regulation would not exclude use of fans as a supplemental control measure or for other purposes such as cooling, but that fans could not be a substitute for LEV or water controls. Buck Cameron agreed. He said that fans can spread exposures to other workers and passersby. He said that no industrial hygiene technical guidance he was aware of recommended use of fans for control of employee exposures to particulate matter.

### **Further discussion of specific operations and materials**

Bruce Wick said that the CalPASC proposal excluded ceramic tile from coverage because it is already almost always cut wet. Jim Bresnahan said that a major concern he had with tile work was grinding of the concrete surface on which tiles are installed.

Eric Koberce, suggested limiting operations for inclusion to those generating “repeated substantial exposure” to dust.

Len Welsh said the most difficult part of developing a regulation will be reliably identifying those operations which merit exclusion because they are always very short or intermittent.

Juli Broyles suggested sharing of data on dust exposures from different operations. A question was asked if such information provided to the Division might be used for enforcement purposes. Steve Davis suggested that employers might want to redact their names when providing materials to the Division.

Jim Bresnahan said that “mortar” should be added to clarify its inclusion as a “masonry material.” Len Welsh asked if there was any objections to this. No objection was heard and Kevin Bland said he did not have any from the CalPASC members at the meeting.

Leroy Cisneros, said he objected to earlier suggested exclusion of cutting of roofing tiles and pavers. He said he wanted more study before these were excluded from coverage by the regulation.

Russ Hutchison, said “soft” concrete is a technical term referring to a particular product. In the industry, the term “green” is used generically for uncured concrete. Len Welsh suggested that with equivalence of tools with LEV and water, this should be less of an issue. Bruce Wick, asking members of CalPASC present, agreed.

Len Welsh asked if, aside from questions of exclusion of specific materials, the draft language for (a) Scope and Application, was acceptable. Dan Hull, pointed out that the proposed language of subsections (a) and (c) referring to the operations covered should be identical. Len Welsh agreed and thanked him for pointing out that they were not.

Bill Callahan, asked if blowing of dust off of roofs would be covered. Len Welsh said that this would be getting too far away from the concept of “disrupting” concrete or masonry materials.

### **Respirators**

Len Welsh asked if there were suggestions on requirements for use of respirators during cutting and grinding operations. Fran Schreiber said it should be clarified that compliance with the requirements of the proposed standard by itself did not supplant other general requirements for use of respirators. Len Welsh suggested that pertinent Title 8 sections such as 5141, 5144, and 5155 could be noted as still applicable in a note after scope as had been done for the recent standard on heat illness in outdoor workplaces, section 3395. Kevin Bland said this would be acceptable to his groups.

### **Other materials**

Len Welsh suggested moving on from discussion of materials for inclusion or exclusion. He suggested that those with an interest send him information on specific materials that they thought should be included or excluded from the provisions of the standard. He suggested that there were two approaches that could be taken to addressing what materials should be included and excluded, either indicating each material by name as being covered, or not covered, or saying that the regulation applied to disturbance of stone and cementitious materials.

Bruce Wick said it could be hard to define some materials specifically fitting as stone or cementitious. He said CalPASC preferred naming materials that would be specifically excluded from coverage.

Mike Horowitz read a list of silica-containing materials from a fact sheet published by the Health & Safety Executive (HSE) in the United Kingdom. Materials listed included concrete and mortar (25 to 70% silica), tile (30 to 45% silica), and brick (up to 30% silica).

Juli Broyles said that the drafts of SB 46 in 2006 had only referred to masonry and concrete. She said that if the Division’s proposal went beyond those materials it would violate the spirit of the discussions that led to the agreement by employer and employee groups that in exchange for withdrawing the bill the Division should pursue rulemaking through the advisory committee process.

Len Welsh said that if individual materials were listed for inclusion or exclusion, it would then raise the question in every enforcement case of whether the particular material or product being addressed was covered by the standard, even if it emitted substantial airborne silica with cutting or grinding. He said this could also invite many questions from employers as to whether particular materials did or did not require use of LEV or water. He said that he preferred a simpler approach that would include the materials of concern containing silica while not leading to questions in each case as to whether the material was covered.

Juli Broyles acknowledged this difficulty, asking if the siding materials mentioned earlier were or were not masonry or concrete. Fran Schreiber suggested that interested parties send in their suggested specific items for possible exclusion or inclusion along with studies supporting their suggestion. Len Welsh supported this and said that the Division could act as a clearinghouse for such studies. Fran Schreiber said that particularly studies supporting exclusion of particular materials should be shared with all interested parties. Len Welsh encouraged participants to send information to DOSH that could help with establishing the scope of the regulation.

### **Additional details of the discussion draft**

Bruce Wick said that if there is consensus on giving regulatory equivalence to LEV and water, then exceptions for use of water (ie. exceptions 1, 2, and 3 in the discussion draft) would be moot and should be removed from the draft. That would leave only the exception based on non-exceedance of the PEL for silica.

Len Welsh asked if there were any objections to Bruce Wick's proposal to drop exceptions 1,2, and 3 and none were heard.

Len Welsh then asked if there were suggestions for "*de minimus*" operations that could safely be excepted from coverage because they would never be expected to result in a PEL exceedance. He suggested attendees send supporting data along with suggestions for such operations.

Bob Downey suggested that short duration roofing operations, such as for roofing repair work, might be appropriately regarded as not presenting an exposure hazard. Fran Schreiber said it would be necessary to define "short duration" in order for such an exception to be included. Len Welsh suggested it might be stated in terms of doing a particular operation performed less than a certain number of minutes in a work shift.

Len Welsh then referred to the first issue listed in the discussion draft under subsection (d). That is, how to determine the effectiveness of the dust collection/suppression system in the absence of independent standards for design, testing, and maintenance of such systems. Juli Broyles suggested that recent work done by the Standards Board and the Division on rules for small dust collection systems in woodworking shops might be instructive.

Len Welsh asked if there should be a role for "process isolation" as a supplemental exposure control measure. Kevin Bland said that the CalPASC proposal had included it in employee training. There was general agreement among meeting attendees with this approach.

Bill Benham asked if respirators would be an alternative to LEV or water. Len Welsh said that per the hierarchy of controls in section 5144, respirators could not be a substitute for engineering controls for control of hazardous exposures and would not be an acceptable alternative to LEV or water when required by the proposed standard.

Len Welsh asked attendees how they thought protective clothing, equipment and housekeeping should be addressed. Fran Schreiber said that since this would not be a comprehensive chemical standard it would be most appropriate to address through training.

### **Employee training**

Juli Broyles said that the draft language for employee training was too comprehensive. She said that the scope of training for supervisors should be limited only to those directly supervising employees conducting the operations addressed by the regulation. She said she preferred the language of subsection (e)(2) to that of (e)(1) for the supervisor training. She suggested making (e)(1) more like (e)(2). But Joel Cohen said that the language of (e)(2) covering supervisors of employees with "possible" exposure was too expansive.

Juli Broyles also suggested clarifying that the training can be included in the Injury and Illness Prevention Program.

Juli Broyles also suggested that in (e)(1)(B) training employees in "the rationales behind the employer's choice of methods" for dust control was not needed. Fran Schreiber said that perhaps a better word than "rationale" could be found, but she thought it was important for employees to have enough information to have a basic understanding of which operations were likely to generate potentially harmful levels of exposure.

Dan Bradway said he did not think (e)(1)(C) was needed, regarding the employer's hazard communication program. Len Welsh agreed that this was not needed here. Fran Schreiber suggested adding it as another section in the Note after Scope to reference as remaining applicable.

Julia Broyles questioned the requirement of (e)(1)(D) for discussion of measured exposure levels of dust associated with different tasks because she thought that few employers would have this information to provide.

Kevin Bland said he thought that subsection (e)(1)(D) was not necessary, and that (e)(1)(E) on the PELs for silica and total dust were also not necessary.

Jim Breuner identified a typographical error, omission of the word “may” in (e)(1).

Jim Kegebein asked about whether there would be a requirement for refresher training. Len Welsh asked attendees if there should be a requirement for annual refresher training. Bill Callahan and Kevin Bland said that a requirement for annual re-training was not necessary.

Len Welsh said he understood their concerns with meeting the annual training requirement but he was concerned that one-time training would not be enough. Fran Schreiber said that with jobsite changes annual refresher training is necessary and reasonable. Len Welsh suggested that refresher training could be incorporated into ongoing tailgate topics rather than being a special separate training program. Bruce Wick said that keeping track of annual refresher training for those employees who may not stay at one employer for any length of time was unreasonably burdensome. Len Welsh suggested that if the refresher training was scheduled once per year for everyone that should be sufficient, even if a few employees are missed.

Dan Bradway suggested that maybe a training card system could be established, a card that could be validated by the employer, union, or outside provider, showing that annual refresher training was provided. Len Welsh suggested this might be like the “safety passport” system established by the motion picture industry. Closing the meeting he asked attendees to send him ideas on how refresher training could be managed, and stated as a requirement in the proposal, so that it would be most effective and efficient.

END