

**Lessard, Edward T**

**From:** Conrad, Cheryl S  
**Sent:** Friday, November 30, 2007 4:00 PM  
**To:** Alforque, Rodolfo; Beavis, Dana; Conrad, Cheryl S; Gaffney, Michael; Haas, Edwin; Kane, Steven F; Karol, Raymond C; Lessard, Edward T; Mortazavi, Payman; Rehak, Margareta L; Travis, Richard J; Tuozzolo, Joseph E; Wu, Kuo-Chen; Gunther, William E; Taylor, John H; Ackerman, Andrew  
**Subject:** FW: LESHHC 07-29 Cryogenic Safety Analysis Email Vote - Final Results Summary

All,

In summary, the majority vote was "No" (not to recommend that the proposed changes be incorporated into the Subject Area.)

Below is a summary of the comments received.

Comments	Vote
	No
<p>General:  Long sleeved shirts should be worn whenever transferring cryogenes. There is no performance degradation from the use of long sleeved shirts (i.e., no negatives) and their use allows for personal protection from possible open wounds (cuts, scraps, etc.). A spill directly on the skin may not directly cause injury, but the sudden (reflex) reaction can cause a momentary loss of control that can have a unwanted result (dropping of the transfer dewar). The use of long sleeves could minimize this possibility.</p> <p>The preferred PPE should be the one that provides the greatest protection. Face shield and safety glasses should be preferred unless the risk from using them outweighs the additional benefit over a less preferred PPE (i.e. safety goggles).</p> <p>Dispensing LN<sub>2</sub> from a pressurized line to an open dewar:  This would be a case where face shield and safety glasses should be used over goggles.  Upon failure, cryogenes may spray on the worker who will be trying to secure the flow (stop the spill).  It would be difficult to predict probable spray directions and face shield will provide additional protection to nose, mouth and ears.</p> <p>Pouring LN<sub>2</sub> (small volume):  Hand PPE should always be used (not necessarily cryo gloves, matter of fact, the loss of physical dexterity may make their use more hazardous). Open wounds (cracked skin, nails) should be protected. Risk vs. Benefit can be used.</p> <p>It is stated that safety glasses (with side shields) are often adequate unless violent splashing could result. In the Hazard Analysis sections, it states "LN<sub>2</sub> will splash violently when poured to a room temperature surface." I would have to conclude that safety glasses are not recommended for pouring even small volumes of LN<sub>2</sub>.  Safety glasses may be adequate for someone next to the person (not directly involved with) doing the transfer but not the person performing/looking directly at the transfer. (Due to their bulkiness</p>	No

and degradation of vision, full face shields use may increase the hazard potential – spill - and may not be warranted).	
Include changes to Subject Area as appropriate	Recommend to accept
In view of the requirements of CGA, and the MSDS for these liquids, we can't really approve this. If there were some science to demonstrate that the CGA and MSDS are incorrect, then we might stand a chance, but so far no science has been forthcoming.	No
This was a good analysis but given the 10CFR851 compliance requirement, I can't approve. There is no choice. The only approval path would be a variance from DOE	No
No, but recommend a meeting	No / recommend a meeting
	Recommend to accept
	Recommend to accept*
I vote for no. I think gloves should be used even for handling 5 L of cryogen.  There may be many people who wear shorts and short sleeve shirts in the summer. I wonder some protective clothes that covers arms and legs could be considered acceptable for handling cryogen.	No

\* Vote discounted because individual did not have PCSS training.

Please let Ed Lessard or me know if you have any questions.

Cheryl  
LESHC Secretary