

North America EHS Committee Meeting Summary and Minutes

NA Standards Fall 2012 Meetings
01 November 2012, 0900 – 1600 Pacific Time
SEMI Headquarters in San Jose, California

Next Committee Meeting

NA Standards Spring 2013 Meetings
Thursday 04 April 2013, 0900 – 1600 Pacific Time
SEMI Headquarters in San Jose, California

Table 1 Meeting Attendees

Italics indicate virtual participants

Co-Chairs: Chris Evanston (Salus Engineering), Sean Larsen (Lam Research AG), Eric Sklar (Safety Guru, LLC)

SEMI Staff: Paul Trio

<i>Company</i>	<i>Last</i>	<i>First</i>	<i>Company</i>	<i>Last</i>	<i>First</i>
AKT	Wong	Carl	Salus	Visty	John
Applied Materials	Karl	Edward	Seagate Technology	Layman	Curt
ASML	Planting	Bert	Tokyo Electron	Hamilton	Jeff
Cymer	Frankfurth	Mark	Tokyo Electron	Hoshi	George
Cymer	Yakimow	Byron	Tokyo Electron	Mashiro	Supika
Intertek	Rai	Sunny	Tokyo Electron	Nambu	Mitsuju
KLA-Tencor	Crane	Lauren	TUV SUD	Derbyshire	Pauline
KLA-Tencor	Crockett	Alan	TUV SUD	Holbrook	Glenn
Lam Research	Claes	Brian	U.S. PVMC	Rudack	Andy
Lam Research	Kryaska	Paul	Ultratech	Green	Paul
Lam Research AG	Larsen	Sean			
Macklin & Associates	Macklin	Ron			
Nikon Precision	Greenberg	Cliff	SEMI	Trio	Paul
Salus	Evanston	Chris	SEMI Japan	Tejim	Naoko

Table 2 Leadership Changes

<i>Group</i>	<i>Previous Leader</i>	<i>New Leader</i>
Manufacturing Equipment Safety Subcommittee (MESSC)		Lauren Crane (KLA-Tencor) was appointed as SC co-chair.

Table 3 Ballot Results

Passed ballots and line items will be submitted to the ISC Audit & Review Subcommittee for procedural review.

Failed ballots and line items were returned to the originating task forces for re-work and re-balloting.

<i>Document #</i>	<i>Document Title</i>	<i>Committee Action</i>
4449D	Delayed Line Item Revision to SEMI S2-0712, Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment. Line Item Revisions related to Work at Elevated Locations and Design Criteria for Platforms, Steps, and Ladders	
Line Item 1	Addition of a Delayed Revisions Section Related to Work at Elevated Locations, and Design Criteria for Platforms, Steps, and Ladders	Failed and returned to task force.

Table 3 Ballot Results

Passed ballots and line items will be submitted to the ISC Audit & Review Subcommittee for procedural review.

Failed ballots and line items were returned to the originating task forces for re-work and re-balloting.

Document #	Document Title	Committee Action
5000B	Delayed Revisions to SEMI S2, Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment. Addition of Related Information to S2: Selection of Interlock Reliability	Failed and returned to task force.

Table 4 Authorized Activities

#	Type	SC/TF/WG	Details
5521	SNARF	NA EHS Committee, 5-Year Review	Reapproval of SEMI S1-0708E, Safety Guideline for Equipment Safety Labels
5522	SNARF	S6 Revision TF	Reapproval of SEMI S6-0707E, EHS Guideline for Exhaust Ventilation of Semiconductor Manufacturing Equipment

Note: SNARFs and TFOFs are available for review on the SEMI Web site at:

<http://downloads.semi.org/web/wstdsbal.nsf/TFOFSNARF>

Table 5 Authorized Ballots

#	When	SC/TF/WG	Details
4316I	Cycle 1, 2013	S22 TF	Line Item Revision to SEMI S2, <i>Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment</i> , and SEMI S22, <i>Safety Guideline for the Electrical Design of Semiconductor Manufacturing Equipment</i> Revisions related to clarifying the FECS criteria of S2 and S22
5521	Cycle 1, 2013	NA EHS Committee, 5-Year Review	Reapproval of SEMI S1, Safety Guideline for Equipment Safety Labels
5522	Cycle 1, 2013	S6 Revision TF	Reapproval of SEMI S6, EHS Guideline for Exhaust Ventilation of Semiconductor Manufacturing Equipment
4683B	Cycle 1, 2013 (or C2-13)	S2 Chemical Exposure TF	Line Item Revisions to SEMI S2, <i>Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment</i> Delayed Revisions Related to Chemical Exposure
5000C	Cycle 1, 2013 (or C2-13)	S2 Interlock Reliability TF	Line Item Revisions to SEMI S2, <i>Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment</i> Delayed Revisions Related to Interlock Reliability and Selection (added as Related Information)
4449E	Cycle 2, 2013	S2 Ladders & Steps TF	Revision to SEMI S2, <i>Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment</i> . Revisions related to stairs, ladders, platforms, and fall protection
5009B	Cycle 2, 2013	Ergonomics TF	Delayed Line Items Revisions to SEMI S8, <i>Safety Guidelines for Ergonomics Engineering of Semiconductor Manufacturing Equipment</i>
5357A	Cycle 2, 2013	S2 Non-Ionizing Radiation TF	Line Item Revisions to SEMI S2, <i>Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment</i> Delayed Revisions Related to Non-Ionizing Radiation

1 Welcome, Reminders, and Introductions

Sean Larsen called the meeting to order at 9:05 AM. Attendees introduced themselves. The SEMI meeting reminders on Standards membership requirement, antitrust issues, intellectual property issues, and effective meeting guidelines were presented. Finally, the agenda was reviewed.

Attachment: 01, SEMI Standards Required Meeting Elements

2 Review of Previous Meeting Minutes

The committee reviewed the minutes of the previous meeting held July 12 in conjunction with SEMICON West 2012.

Motion: Approve as written
By / 2nd: Lauren Crane (KLA-Tencor) / Bert Planting (ASML)
Discussion: None
Vote: 8-0. Motion passed.

Attachment: 02, NA EHS SEMICON West 2012 meeting (July 12) minutes

3 Leadership and Liaison Reports

3.1 Europe EHS Committee

Bert Planting reported for the Europe EHS Committee. Of note:

- Tom Pilz (Pilz GmbH) appointed as co-chair
- EU EHS SWOT analysis (from ERSC Strategy Meeting, February 2012)
- Action Plan 2012-2013: Existing Activities
 - 2 EHS Standards published by European committee
 - SEMI S10 (risk assessment)
 - SEMI S25 (hydrogen peroxide)
 - SEMI S25 revision ballot adjudicated at SEMICON Europa 2012 (Dresden)
 - New Appendix to SEMI S2 (interlock reliability) balloted in Cycle 5-12. Received a lot of negatives
 - SEMI S10 is upcoming for rebalot
- Action Plan 2012-2013: New Activities
 - Reapproval of SEMI S25
 - Approval of interlock reliability RI to SEMI S2 (in North America)
 - Plan STEP programs on Interlock reliability after approval
- SEMI staff contact: Yann Guillou (yguillou@semi.org)

Additional Discussion:

- Lauren Crane asked to clarify whether S10 will be submitted for reapproval. Bert Planting confirmed that S10 will be submitted for reapproval and adjudicated at SEMICON Europa 2013, but the balloting cycle to be used has yet to be determined.

Attachment: 03, Europe EHS Committee Report

3.2 Japan EHS Committee

Supika Mashiro reported for the Japan EHS Committee. Of note:

- Next meeting is scheduled for December 7 at SEMICON Japan 2012 (Makuhari Messe, Chiba)
- Leadership changes
 - S23 Revision Task Force

- Shigehito Ibuka (TEL) stepped down as TF leader.
 - George Hoshi (TEL) has been appointed as new TF co-leader.
 - GHG Emission Characterization Task Force
 - Shigehito Ibuka (TEL) stepped down as TF leader.
 - George Hoshi (TEL) has been appointed as new TF co-leader.
- Ballot Results:
 - S13 revision [#4976C] passed committee review as balloted.
 - S17 revision [#5353] passed committee review with editorial changes.
- S13 Revision TF
 - Doc. #4976C passed committee review. Japanese translation is almost finished.
- S17 Revision TF
 - Doc. #5353 passed committee review. TF will work on Japanese translation.
- S18 Revision TF
 - TF currently has no activity.
- S23 Revision TF
 - New SNARF to revise S23 was approved by the committee.
- FPD System Safety Task Force
 - TF currently has no activity.
- Greenhouse Gas (GHG) Emission Characterization Task Force
 - S29-0712 (*Guide for F-GHG Emission Characterization and Reduction*) was published.
 - Next step: TF to discuss improvements.
- Seismic Protection Task Force
 - Formerly Seismic Protection Working Group
 - TF has been discussing seismic calculation and parameter.
 - Discussing section 19 (Seismic Protection) of SEMI S2 with Taiwan EHS Committee.
 - SNARF will be submitted at the next meeting.
- STEP Planning Working Group
 - SEMI S2 STEP held on November 22 at the SEMI Japan office (Tokyo)
 - For more information: <http://prod.semi.org/jp/node/16911> (Japanese only)
- Other activities
 - A safety workshop is scheduled for December 5 during SEMICON Japan 2012
 - Theme: “Trend of the current Safety Demands – SEMI Safety Guidelines comparison with Major Safety Standards”
 - For more information: <http://prod.semiconjapan.org/en/sessions/standards>
- SEMI staff contact: Naoko Tejima (ntejima@semi.org)

Additional Discussion:

- Sean Larsen asked whether the S18 STEP is still being planned. Supika Mashiro responded that the S18 STEP is not planned for this year. She stated that an S18 program was held about two years ago where silane issues were discussed. Supika pointed out that the current version of S18 reflects the inputs and discussions from that previous workshop.
- With regard to the seismic protection activity, Lauren Crane asked whether the TF is planning to do a line item revision on SEMI S2. Supika responded, “Yes.” She also pointed out that, less than three years ago, Japan EHS reported that it had restarted the seismic protection activity. Supika stated that MESSC had no interest in the effort at that time and recommended that the activity be carried out in Japan. She pointed out that a Global TF can be formed if NA wants to be more involved. However, having a Global TF may be a little burdensome for Japanese participants as English needs to be spoken. Sean Larsen pointed that there are also participants from Taiwan. Supika responded that some members in Taiwan are able to speak Japanese. She reiterated that if English needs to be spoken every time, Japanese members will have difficulty. Chris Evanston asked the committee whether there is interest in creating a liaison TF. Lauren responded, “Yes.” Chris then recommended blocking out a time during the NA Standards Spring 2013 meeting schedule to see if forming a liaison TF is a good idea or needed.

Attachment: 04, Japan EHS Committee Report

3.3 RSC / Committee Leadership Report

Sean Larsen provided the cochairs report. Of note:

- RSC report out
 - The RSC meeting was minimized and primarily focused on a planning meeting
 - Primary messages of interest to EHS
 - More and more activities and SNARFs are happening in new “locales” (e.g., Taiwan, Korea, China)
 - SEMI is making concerted effort to help with guidance on the SEMI standards process and ballot language issues
 - Can expect a new set of Regulations and Procedure Guide before the SEMICON Japan [2012] meetings
- Planning meeting highlights
 - Trying to figure out how to better communicate to all affected people in related industries
 - More impact and penetration with NA STEPs/education programs
 - Training to make participation in Standards easier and more effective
 - Better advertising of SEMI and Standards
 - Saving the knowledge of the “grey beards” that are leaving
 - Primary thought was to develop collections of short webinars to serve this purpose
 - Keep to targeted ~15 to 20 minute pieces to make more palatable to the younger representatives that are more interested and accustomed to social media
 - Allows efforts to be reused and more easily facilitates multiple language presentation
 - Webinars
 - Questions/concerns
 - Vetting process to keep advertising to an acceptable level (likely one slide) and to avoid the presentation being one person’s opinion

- How to determine and target higher priority topics
- SEMI to resolve hosting questions and how to make mobile device friendly
- Ballot submittals – Voting help
 - The definitions from the Regulations are below:

9.1.5 Comment — The text or other supporting material, submitted with a Vote other than Reject, or clearly marked as Comment when submitted with a Reject Vote. If the intention of the Reject Voter cannot be easily determined, the text or other supporting material shall be treated as a Negative.

9.1.6 Negative — The text or other material submitted with a Vote of Reject on a letter ballot.
 - If you wish to submit comments with a Reject vote, please clearly indicate that they are COMMENTS.
 - The “Technical” and “Editorial” classification that has been done for years means nothing for adjudication.
 - If you wish to indicate that you believe the negative can be fixed with an editorial change, please indicate this clearly, not in shorthand.
 - The A&R subcommittee is taking a very close look at this and this is the #1 situation that they are rejecting ballots that have been passed by committee.

Additional Discussion:

- Lauren Crane asked whether the Audits & Reviews (A&R) Subcommittee (SC) can provide examples of editorial vs technical changes. Supika Mashiro responded that it is not up to the voters to decide whether something is editorial or technical. She pointed out that even if the voter says that something is editorial, it does not necessarily mean that it is indeed editorial. Paul Trio stated that he often sees voter responses marked with either “Technical” or “Editorial.” He then asked whether there was a template that was previously created by the EHS committee and adopted by its members. Lauren Crane and Alan Crockett both pointed out that the terms “Technical” and “Editorial” were used in the old Yellow (Letter) Ballot template. Finally, Bert Planting stated that the A&R SC looks and examines whether a proposed editorial change is indeed editorial and not technical in nature.

Attachment: 05, Leadership Report

Action Item: 2012Nov #01, Paul Trio to post EHS voting template, TF leader kit, and F2F meetings bridge info on the EHS committee page (<http://www.semi.org/en/node/41746>) on the SEMI Standards website.

3.4 ICRC (International Compliance and Regulatory Committee)Liaison

Mark Frankfurth, ICRC cochair, reported that the committee is maintaining a steady level of activity. The ROHS WG is working to influence the European Commission’s Waste Electronics and Electrical Equipment (WEEE) guidance document. The Conflict Mineral WG is in its early stages and is figuring out what guidance should there be with regard to this issue. For more information or to engage these WGs, contact Mr. Sanjay Baliga (sbaliga@semi.org) at SEMI.

Future activities include doing more research to understand arc flash (including arc flash requirements in NFPA 70E, 2012 updates) as well as the 2012 updates to NFPA 79 which includes changes related to electrical safety.

The next ICRC meeting is scheduled for December 5 at SEMICON Japan 2012. Mark also reported that the next ICRC meeting after SEMICON Japan is being canceled. Finally, eight (8) ICRC meetings are scheduled for 2013 (vs. 10 in previous years).

3.5 SEMI Staff Report

Paul Trio gave the SEMI Staff Report. Of note:

- 2012 Global Calendar of Events
 - SEMICON Japan / PV Japan (December 5-7, Chiba)
- 2013 Global Calendar of Events (through July)
 - European 3D TSV Summit (January 22-23, Grenoble, France)
 - SEMICON/LED Korea (January 30 – February 1, Seoul)
 - ISS Europe 2013 [Industry Strategy Symposium] (February 24-26, Milan, Italy)
 - 7th PV Fab Manager Forum (March 10-12, Berlin, Germany)
 - SEMICON/FPD/SOLARCON China (March 19-21, Shanghai)
 - SEMICON Singapore (May 7-9, Marina Bay Sands)
 - SEMICON Russia (June 5-6, Moscow)
 - Intersolar Europe (June 19-21, Munich, Germany)
 - SEMICON West (July 9-11, San Francisco, California)
- NA Standards Fall 2012 Meetings
 - Committees meeting at SEMI Headquarters (San Jose)
 - 3DS-IC | EHS | Facilities & Gases | HB-LED | Information & Control | Liquid Chemicals | MEMS/NEMS | Metrics | PV/PV Materials | Traceability
 - SEMI thanks Intel (Santa Clara) for hosting the PIC and Silicon Wafer meetings
- NA Standard Spring 2013 Meetings
 - April 1-4 at SEMI Headquarters in San Jose, California
 - Inviting local companies willing and able to host some of the meetings to maintain one-week format
 - Final schedule to be announced by the end of December 2012
- Technical Ballot Critical Dates for NA Spring 2013 Meetings
 - Cycle 1: due January 3 / January 16 – February 15
 - Cycle 2: due February 4 / February 18 – March 20
- Upcoming NA Meetings
 - NA HB-LED Task Force Meetings @ Strategies in Light
 - February 12-14, 2013 in Santa Clara, California
 - NA Microlithography Committee Meeting @ SPIE Advanced Lithography
 - February 24-28, 2013 in San Jose, California
 - NA Standards Spring 2013 Meetings
 - April 1-4, 2013 in San Jose, California
- Standards Publications Report
 - July 2012 Cycle
 - New Standards – 6, Revised Standards – 6, Reapproved Standards – 4, Withdrawn Standards – 2
 - August 2012 Cycle
 - New Standards – 0, Revised Standards – 16, Reapproved Standards – 7, Withdrawn Standards – 0
 - September 2012 Cycle
 - New Standards – 10, Revised Standards – 18, Reapproved Standards – 7, Withdrawn Standards – 0, Total in portfolio – 860 (includes 92 Inactive Standards)
- New Ballot Formatting Templates
 - Updated 2010 versions to comply with Style Manual and Procedure Guide changes

- Templates by Document subtypes are available on the SEMI Standards web site, includes the mandatory sections for each type
- Style Manual
 - Version 5 published in August 2011
 - Major changes: Required sections information moved to the Procedure Guide; Notices updated
 - The Style Manual contains terminology formatting information; the Procedure Guide contains information about writing/attributing definitions
- Compilation of Terms (COT)
 - Updated and published after each publication cycle is completed
 - Contains all Abbreviations, Acronyms, Definitions and Symbols listed in the terminology section of Standards and Safety Guidelines.
- Coming Soon: New Standards Ballot and Membership Systems. Key changes:
 - User interface
 - Log-in
 - One-time log-in per session to vote on ballots
 - Same log-in for SEMI Members
 - Functionality
 - Retrieve and edit submitted votes for current cycle
 - Text field and attachment option for each ballot or line item
 - Integration
 - Linked to new membership application / profile management
 - Access to other SEMI products & services

Target deployment: Cycle 1, 2013

Attachment: 06, SEMI Staff Report

4 Ballot Review

4.1 Document # 4449D, Delayed Line Item Revision to SEMI S2-0712, *Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment*. Line Item Revisions related to Work at Elevated Locations and Design Criteria for Platforms, Steps, and Ladders

4.1.1 *Line Item # 1: Addition of a Delayed Revisions Section Related to Work at Elevated Locations, and Design Criteria for Platforms, Steps, and Ladders*

Tallies at Close of Voting

Voting Interest Returns	67	Voting Interest Accept Votes (VIAccept)	26
Total Voting Interests	100	Interest Reject Votes (IReject)	6
Voting Interest Return %	67.00%	Approval % [VIAccept / (VIAccept + IReject)]	81.25%
Other Returns (Intercommittee, etc.)		# of Interest Rejects that Need to be not found Valid for	
	5	Final Approval % >= 90%	4
Total Votes	72		
Total Votes with Comments	2		
Total Reject Votes	8		

Rejects/Negatives

Company: Submitter	ID	Negs	Disp	Company: Submitter	ID	Negs	Disp
Applied Materials: Edward Karl	AMAT	4		Lam Research: Paul Kryska	LAMA	2	
KLA-Tencor: Alan Crockett	KTA	4		Lam Research: Brian Claes	LAMB	4	
KLA-Tencor: Lauren Crane	KTB	6		Salus: Chris Evanston	SLUS	3	
Lam Research AG: Sean Larsen	LMAG	19		Tokyo Electron: Mitsuju Nambu	TEL	2	

W = Withdrawn, NR = Not Related, NP = Not Persuasive, RP = Related and Persuasive, NS = Not Significant, S = Significant

#	Ref.	Negative including Justification	TF Finding and Reason	Motion and Reason in Committee:	Final
AMAT 2	18.8.3.1 Exception	<p>Negative</p> <p>The Exception clause to Section 18.8.3.1 specifies that fall protection may not be provided or specified for operation, service, or maintenance tasks scheduled or anticipated by the supplier to be performed no more than once every two weeks and for a total of no more than 4 worker-hours during any sequential 4-week period. The second part of the clause is problematic from a compliance verification perspective because the duration for any task could vary depending on a number of factors.</p> <p>Secondly, it is not clear just when the clock starts and stops in a particular task. For example, if the procedure states, "Step 1: Turn off Main Circuit Breaker at the Equipment. Step 2: Don appropriate Arc Flash apparel. Step 3: Erect signs and barriers tape around the AC Box. Step 4: Open the AC Box door and verify zero energy isolation using a calibrated Digital Voltmeter. Step 5: Don appropriate clean room garment and step up onto the raised service platform and perform Chamber clean procedure per XXX." Step 1 through 4 of this hypothetical maintenance task could take an hour or more, even before personnel steps onto the elevated platform.</p> <p><u>Proposed Solution:</u></p> <p>Delete the phrase, "and for a total of no more than 4 worker-hours during any sequential 4-week period (e.g., 2 workers every 4 weeks for 2 hours = 4 worker-hours per 4-week period). If TF wishes to bring attention to the reader that OSHA Directive STD 01-01-13 has this time based requirement, include this as part of the NOTE ##.</p> <p>If the TF believes that the justification and the proposed solution above are not persuasive, I would like to propose that the TF at least clarify in the Exception clause by adding the words, "at the elevated locations" following the words "to be performed". This would at least address the concern raised in the second part the Negative above.</p>	<p>(Select 1)</p> <p><input type="checkbox"/> Not related</p> <p><input type="checkbox"/> Not persuasive (assumes related)</p> <p><input checked="" type="checkbox"/> Related & persuasive</p> <p>Reason:</p> <p>Not an appropriate exception for fall protection.</p> <p>Evanston/Crane</p> <p>TF Vote: 11for / 0 against</p> <p>Motion passes. Task force recommends failing ballot and return it to TF for rework.</p>	<p>Withdrawn by Subm. (Date: _____)</p> <p>Move to find this negative: (AMAT 2)</p> <p><input type="checkbox"/> Not related (requires reason, follow)</p> <p><input type="checkbox"/> Committee new business</p> <p><input type="checkbox"/> Assigned to: _____</p> <p><input type="checkbox"/> Not persuasive (requires reason)</p> <p><input checked="" type="checkbox"/> Related & persuasive (ballot fails)</p> <p>Reason:</p> <p>The exception as written is not an appropriate exception for fall protection.</p> <p>By/2nd: Ron Macklin/Lauren Crane</p> <p>Disc: None</p> <p>Vote: 11-0. Motion passed</p> <p>Significance finding/method: (select 1)</p> <p><input type="checkbox"/> Not significant by agreement</p> <p><input type="checkbox"/> Not significant by motion</p> <p><input type="checkbox"/> Significant by % of NP vote (>10%)</p> <p><input type="checkbox"/> Significant by agreement</p> <p><input type="checkbox"/> Significant by motion</p> <p>By/2nd:</p> <p>Disc:</p> <p>Vote: #-#-#. Motion passed failed</p>	

Comments

<i>Company: Submitter</i>	<i>ID</i>	<i>#</i>	<i>Company: Submitter</i>	<i>ID</i>	<i>#</i>
KLA-Tencor: Lauren Crane	KTB	3			
Lam Research AG: Sean Larsen	LMAG	4			
Hatsuta Seisakusho: Moray Crawford	HATS	1			
Macklin & Associates	MCKN	1			

Followup Activity Authorization

Move to:

- Return ballot to the originating task force for rework
 and authorize a follow-up ballot
- Transfer ballot to the (name) task force for rework
 and authorize a follow-up ballot
- Discontinue work on ballot.

By/2nd: Ron Macklin / Lauren Crane

Disc: None

Vote: 12-0. Motion **passed**

Attachment: 07, 4449D LI 1 Compiled Responses

4.2 Document # 5000B, Delayed Revisions to SEMI S2, *Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment*. Addition of Related Information to S2: Selection of Interlock Reliability

The NA EHS committee discussed on how it should move forward with the interlock reliability (#5000) activity. Bert Planting provided the following presentation (summary provided below):

- Goal for document 5000:
 - As agreed on during Fall meeting 2010: Add a new RI to S2 for explaining the use of risk assessment for the determination of the required interlock and safety control system reliability
→ Focus is not for designing an interlock but guide designers towards the correct standards
- Current Status
 - Ballot 5000B was sent out and received several negatives and comments:
 - 9 rejects with 59 negatives
 - 8 comments with 72 itemsA lot of discussion during the TF meeting on the need of document 5000 (4 continue, 8 to stop)
 - Main negatives on:
 - Still reference to EN 954-1 (although still used by a lot of companies)
 - ISO 13849-1 section (mainly on technical content)
- Why the need to use interlock standards
 - Interlocks often poorly designed or overdesigned
 - Weakest link determines the reliability, output often underrated
 - No relation between severity/frequency and risk assessment
 - Customers already asking for data
 - Need to prove correct design in Europe
 - Several other standards (e.g. robots) refer to interlock reliability standards
 - Are the requirements in SEMI S2 sufficient to cover this? [Sections referenced in presentation ¶ 6.6, § 11]
- What do the S2 requirements mean?
 - Only for FECS guidance to interlock standards is given
 - No clear definition is given what the definition safety interlock
 - What is the difference between FECS type safety interlock and “other interlock”?
- Are interlocks designed and reviewed correctly?
 - Review according to SEMI S2 requirements?
 - Review according to the appropriate standard?
 - Do engineers have the knowledge of designing correct interlocks?
 - Based on a risk estimation?
 - Design architecture
 - How do you prove “fault-tolerant”?
 - Use of suitable/approved components?
 - Calculate the required reliability (10⁻³ failures/hour, or 10⁻⁶ failure/hour)?
 - Are third parties capable to do check safety interlock calculations?
- How to continue with Doc 5000?
 - Modify to address main negatives
 - Make just a baseline document covering relation risk assessment and interlock selection
 - Removal technical part of ISO 13849-1
 - Remove EN 954-1 (reference only)
 - Stop current activities on document 5000
 - Are there activities needed for better interlock design guidelines?
- Committee votes on document 5000
 - Vote 1: Failing the document based on technical error
 - Vote 2: Future activities
 - Re-ballot
 - Stop activities

Additional Discussion:

- Supika Mashiro pointed out that a program related to interlocks was held at SEMICON Japan and that there was a lot of interest on this issue. Glenn Holbrook stated that this Document should not focus on interlock designs, but to guide designers towards the correct standards (per the agreed goal during the Fall 2010 meetings).
- Chris Evanston asked to clarify on the path that the TF would take if the committee recommends continuing with developing Document 5000. Sean Larsen responded that the TF would:
 - Remove technical part of ISO 13849-1
 - Remove EN 954-1 (reference only)
- Sean also reported that the TF discussed earlier in the week whether to reduce this activity to a note reference or to make this into a more technical discussion. As there was more work than willing resources with regard to the latter option, the former approach was desired.
- Byron Yakimow pointed out of existing efforts to harmonize related documents from IEC and ISO. Chris Evanston stated that the discussions that he attended at a previous meeting suggested that achieving that goal will take time.
- Carl Wong asked what would be left if the “technical content” is removed in Document 5000. Bert Planting responded that 5000 will point to related documents. Carl Wong commented that he did not see any added value to this.
- Lauren Crane pointed out that ongoing discussions suggest that the proposed RI is requiring users to use these identified documents. He then stated that the TF should stick to its goal of identifying that such documents exists, but not require users to use them. Glenn Holbrook commented that users seem to be aware of these documents already. Therefore, he did not see this proposed RI as necessary.

Tallies at Close of Voting

Voting Return Data		Acceptance Rate Data	
Voting Interest Returns	58	Voting Interest Accept Votes (VIAccept)	30
Total Voting Interests	96	Interest Reject Votes (IReject)	9
Voting Interest Return %	60.42%	Approval % [VIAccept / (VIAccept + IReject)]	76.92%
Other Returns (Intercommittee, etc.)		# of Interest Rejects that Need to be not found Valid for	
	9	Final Approval % >= 90%	6
Total Votes	67		
Total Votes with Comments	5		
Total Reject Votes	9		

Rejects/Negatives

Company: Submitter	ID	Negs	Disp	Company: Submitter	ID	Negs	Disp
Applied Materials: Edward Karl	AMAT	13		Lam Research AG: Sean Larsen	LMAG	11	
AKT: Carl Wong	AKT	9		Salus: Chris Evanston	SLUS	5	
BICSI: Jeff Silveira	BCSI	7		Sokudo: Eiji Nakatani	SKDO	6	
DNS: Naokatsu Nishiguchi	DNS	2		TEL: Mitsuju Nambu	TEL	2	
Lam Research: Brian Claes	LAM	3					

W = Withdrawn, NR = Not Related, NP = Not Persuasive, RP = Related and Persuasive, NS = Not Significant, S = Significant

#	Ref.	Negative <u>including Justification</u>	TF Finding and Reason	Motion and Reason in Committee:	Final
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W = Withdrawn, NR = Not Related, NP = Not Persuasive, RP = Related and Persuasive, NS = Not Significant, S = Significant					
#	Ref.	Negative including Justification	TF Finding and Reason	Motion and Reason in Committee:	Final
SKDO-5	Table R1-4	<p>Negative 5 Table R1-4 Table R1-4 is not matched IEC62061. Please change correct table.</p> <p>Reason/ Justification This table in IEC 62061 has already revised by CORRIGENDUM 2. These parameters are not meet new table.</p>	<p>(Select 1) <input type="checkbox"/> Not related <input type="checkbox"/> Not persuasive (assumes related) <input checked="" type="checkbox"/> Related & persuasive</p> <p>Reason:</p>	<p><input type="checkbox"/> Withdrawn by Subm. (Date: _____)</p> <p>Move to find this negative: (select 1) <input type="checkbox"/> Not related (requires reason, follow) <input type="checkbox"/> Committee new business <input type="checkbox"/> Assigned to: _____ <input type="checkbox"/> Not persuasive (requires reason) <input checked="" type="checkbox"/> Related & persuasive (ballot fails)</p> <p>Reason:</p> <p>By/2nd: Bert Planting / Ed Karl Disc:None Vote: 12-0. Motion passed</p> <p>Significance finding/method: (select 1) <input type="checkbox"/> Not significant by agreement <input type="checkbox"/> Not significant by motion <input type="checkbox"/> Significant by % of NP vote (>10%) <input type="checkbox"/> Significant by agreement <input type="checkbox"/> Significant by motion</p> <p>By/2nd: Disc: Vote: #-#-#. Motion passed failed</p>	

Comments

Company: Submitter	ID	#	Company: Submitter	ID	#
BICSI: Jeff Silveira	BCSI	49	Hatsuta: Moray Crawford	HAT	2
DNS: Naokatsu Nishiguchi	DNS	1	ITSdI (Instituto Tecnologico Superior de Irapuato): Rafael Vargas-Bernal	ITSI	1
Lam Research AG: Sean Larsen	LMAG	14	KLA-Tencor: Alan Crockett	KT	3
			Macklin & Associates: Ron Macklin	RMCK	1
			Safety Plus: Eihiro Hiranuma	SPLS	1

Followup Activity Authorization

Move to:

- Return ballot to the originating task force for rework
and authorize a follow-up ballot
- Transfer ballot to the (name) task force for rework
and authorize a follow-up ballot
- Discontinue work on ballot.

By/2nd: Bert Planting / Alan Crockett

Disc:

Vote: 5-3. Motion passed

Attachment: 08, Document # 5000 Next Steps
09, 5000B Compiled Responses

5 Subcommittee & Task Force Reports

5.1 Manufacturing Equipment Safety Subcommittee (MESSC)

Cliff Greenberg reported.

- Recommendations to the EHS Committee
 - Suggested to ask the S22 TF to consider adding this topic:
 - Arc flash has no reference in SEMI documents and is an inherent electrical hazard.
 - Expand possible application of S2, etc. to other, non-semiconductor equipment?
 - Discussed adding a Note in the Scope that "...semiconductor manufacturing equipment" is not intended to be exclusionary, will discuss at next MESSC with a SNARF at that time.
- Other items:
 - Fault tolerant/fail-to-safe in process
 - LOTO survey will be held for Spring report
 - PV discussion at Committee meeting

Additional Discussion:

- With regard to adding a Note in S2 (i.e., expanding possible application to other non-semiconductor equipment), Lauren Crane commented that it should not only be done on S2, but also consider looking at other applicable Documents.
- Sean Larsen asked Paul Trio to include the MESSC discussion topics in the NA EHS liaison report.
- Supika Mashiro reported that arc flash is referenced in SEMI S21, *Safety Guideline for Worker Protection*.

Attachment: 10, MESSC Report

Action Item: 2012Nov #02, Paul Trio to include MESSC discussion topics in the NA EHS liaison report.

5.2 S23 Revision Task Force

George Hoshi reported. Current activities:

- Continued preparation of ballot draft.
- Agreed to combine the following 2 subjects for the next revision:
 - Temperature Control Unit RI (led by Japan co-leader)
 - Energy Evaluation Procedure of Temperature Control Unit (Local Chiller)
 - Exhaust ECF Revision (led by NA co-leader)
- S23 revision SNARF (#5513) approved by the Japan EHS Committee (September 2012 meeting)
- Future Plans / Timeline
 - Completion of a ballot draft (#5513) in early Dec (Target)
 - Checking
 - More F2F discussion at SEMICON Japan
 - Hold telecons as needed
 - Ballot in Cycle 2, 2013 from Japan EHS Committee

Additional Discussion:

- Sean Larsen asked whether the TF plans to submit document 5513 as a line item ballot. Lauren Crane responded, “Yes.”
- Chris Evanston asked whether the changes related to chillers will be proposed as Related Information (RI). George Hoshi responded, “Yes” and that it would be similar to the vacuum pump RI.
- Supika Mashiro reported that the Energy Saving Equipment Communication (ESEC) TF, under the North America Information & Control (I&C) Committee, is working on a document for the communication between the factory system (host) and the equipment to go into sleep mode. She pointed out the certain clarification in S23 will be necessary to make this type of communication work. She, therefore, suggested that more communication and participation from the EHS Committee is needed. Alan Crockett stated that he plans to follow this TF. He also reported that some of the information discussed in the TF should be in S23 (e.g., what is the tool doing? what is being saved?). Alan plans to help the TF do a more complete scenario because he believes that what the TF has is currently incomplete. Supika expressed concern that the current direction of the ESEC TF’s activity does not rely on S23. She commented that referencing the ESEC TF document from S23 would be better than the ESEC TF document referencing S23.

Attachment: 11, S23 Revision Task Force Report

Action Item: 2012Nov #03, Alan Crockett to report on the progress of the Energy Saving Equipment Communication (ESEC) TF at the next NA EHS committee meeting (in Spring 2013).

5.3 Fail-Safe / Fault-Tolerant Interest Group

Lauren Crane reported. Current activities:

- Reviewed 11 FSFT & Interlock topics from West:
 1. Standard 13849-1 has a lot of press lately, but is not necessarily needed ‘in’ S2.
 2. Designs based on S2 have proven generally sufficient.
 3. However, equipment interlock design might not always anticipate needs of service and maintenance tasks actually performed.
 4. It is reasonable to anticipate that many equipment interlocks have a ‘legitimate’ reason to be bypassed.
 5. ‘bypassing’ an interlock is different from ‘defeating’ an interlock.
 6. Some interlocks, however, protect against such severe or fast acting hazards that bypass should not be allowed.
 7. The Machinery Directive supports the concept of interlock bypass.
 8. If an interlock is bypassed, alerts and alternate protections should be provided.
 9. A general industry survey indicated most injuries arise from improper (i.e. in the wrong manner) bypassing of safety interlocks.
 10. If external interlocks are bypassed, ‘sub-interlocks’ could become active to assist protection.
 11. Specs for routine PM testing of safety circuits (EMO and safety interlocks) appears to be a bit lacking (POV of a chipmaker).

The 11 points can roughly be divided into 3 groups:

1. Terminology group
 2. Procedure-Task focus group
 3. Bypass design and checking group
- Reviewed SNARF Rationale
 - Agreed on focus for first work effort

Attachment: 12, Fail-Safe / Fault-Tolerant Task Force Report

5.4 S1 5-Year Review Discussion

Lauren Crane reported.

- SEMI S1 – Safety Guideline for Equipment Safety Labels
- S1 ideas for change
 - Any effort will need a Task Force w/ 1 or 2 leaders.
 - Any volunteers? – not yet
 - From Carl Wong ‘West 2012
 - “S1 11.3.4 ANSI Z535.4 7.2.4
 - “The word NOTICE shall be in italicized safety white letters on a safety blue background””
 - Change “Safety Label” to “Hazard Alert Label” throughout, to match S2, section 10.
 - S1 doesn’t seem to satisfy customers who have local requirements
 - Would like more freedom to use pictograms only
 - Note or RI related to IEC 60825-1 stance on laser signal words.
 - Hazard description for symbol 18 table1 – appendix 1
 - Consider GHS symbols for chem hazard alerts.
- S1 5-Year
 - Ballot for re-approval – full open document review. No TF leader needed. SNARF by SEMI staff.
 - If re-approval ballot fails, next could be a line item ballot based on re-approval ballot negatives.

Motion: EHS Committee asks SEMI staff to write a SNARF and ballot S1 for re-approval in the next available ballot cycle.
(EHS Committee members are advised to submit negatives to the ballot related to their concerns [as shown above])

By / 2nd: Lauren Crane (KLA-Tencor) / Bert Planting (ASML)

Discussion: None

Vote: 11-0. Motion passed.

Attachment: 13, S1 5-Year Review Discussion Report

5.5 S2 Chemical Exposure Task Force

John Visty reported. Current activities:

- Two line item ballot to be submitted
 - L1 – Update / clarification of 23.5 text to select sampling method and use of accredited lab
 - Status: Ready for Cycle 2, 2013
 - L2 – Definition of OEL
 - Status: Ready to go

Future Plans / Timeline

- Adjudicate ballot during Spring Meeting

- Address in the future
 - Representative Sampling
 - Chemical & Equipment Surrogates
 - Skin contact

Attachment: 14, S2 Chemical Exposure Task Force

5.6 S6 Revision Task Force

John Visty reported. Current activities:

- S6 is due for 5-Year Review. TF discussed 3 options:
 - Re-Approval – Put existing doc out for re-ballot as is / take selective action on feedback (TF members in favor: 5)
 - Re-Write – Make a few line item changes, insert those changes and send whole thing (TF members in favor: 3)
 - Line Item – Make a few line item changes / such as 7.7.1.2 (TF members in favor: 2)

Future Plans / Timeline

- Review ballot during Spring Meeting
 - Determine further actions / interest
- Address in the future
 - Items from S6 re-ballot
 - Release Rate
 - Chemical Surrogates

Motion: EHS Committee asks SEMI staff to write a SNARF and ballot S6 for re-approval in the next available ballot cycle.

By / 2nd: John Visty (Salus) / Bert Planting (ASML)

Discussion: None

Vote: 11-0. Motion passed.

Attachment: 15, S6 Revision Task Force

5.7 S8 Ergonomics Task Force

Ron Macklin reported that the TF is working on the #5009 rebalot which include an additional line item for handle design.

5.8 S2 Non-Ionizing Radiation Task Force

Sean Larsen reported. Current activities:

- Working through feedback on optical radiation ballot that was adjudicated at West
- Will have some teleconferences to work through issues and clean up ballot for cycle 2
- Also asking for any other feedback on NI Radiation section as it is now published

- Anything unclear?
- Any errors?

Future Plans / Timeline

- Looking to submit ballot in Cycle 2, 2013
 - At least one line item for optical radiation
 - Possibly more if issues found in recently published materials

Attachment: 16, S2 Non-ionizing Task Force Report

5.9 S22 Task Force

Sean Larsen reported. Current activities:

- Developing line item ballot for S2 & S22 related to clarifying the FECS (fail-to-safe equipment control system) criteria of S2 ¶ 11.6.1 and S22 ¶ 13.7.3.1.

Future Plans / Timeline

- Looking to ballot FECS line item in Cycle 1, 2013
- Looking to restart S2/S22 criteria alignment discussions in December or January timeline for ballot after Spring meetings
- May start to look into modification of test section to better address component testing, likely after Spring meetings

Attachment: 17, S22 Task Force Report

5.10 Hazardous Energy Isolation (HEI) / Lockout/Tagout (LOTO) Discussion

Sean Larsen reported. Of note:

- Continued discussion from MESSC meeting at SEMICON West 2012
- Topics
 - Some variation in HEI/LOTO/Prevention of unexpected start-up requirements
 - What is required by SEMI S2 § 17?
 - Is any set of LOTO requirements implied?
 - Any problems with SEMI S2 § 17?

Future Plans / Timeline

- Decision was to send out a survey to get input from our non North American colleagues
 - What are your regional or national requirements?
 - What HEI/LOTO aspects do you believe are important
 - Do you have any problems or concerns with SEMI S2 § 17?
 - Sean, John, Lauren, Bill to develop survey
- Follow-up meeting to occur as part of MESSC meeting

Additional Discussion:

- The committee requested regional SEMI staff to assist in the translation or help identify members who would be able to assist in the translation and proofing of the HEI/LOTO survey and survey responses.

Attachment: 18, HEI/LOTO Discussion Report

Action Item: 2012Nov #04, Paul Trio to ask regional SEMI staff to assist in the translation or help identify members who would be able to assist in the translation and proofing of the HEI/LOTO survey and survey responses.

5.11 *EMC Task Force (under the NA Metrics Committee)*

Mark Frankfurth reported that Document 3847D (Revision to SEMI E33-94, *Specification for Semiconductor Manufacturing Facility Electromagnetic Compatibility* with title change to: *Guide for Semiconductor Manufacturing*) passed both technical committee and procedural reviews and will be published shortly. As future activity, the EMC Task Force will address the facilities side of EMC. A SNARF for this activity will be submitted at the NA Standards Spring 2013 meetings. Mark also reported that test methods will be added as possible RIs.

6 Old Business

6.1 *Open Action Item Review*

Paul Trio reviewed the old action items, where are found in the table below

<i>Item #</i>	<i>Assigned to</i>	<i>Details</i>	<i>Status</i>
2012Apr #02	NA EHS TC leadership	Develop PG revision proposal for clarity on line items that have been approved	Open.
2012Apr #03	Paul Trio	Provide an editable, “pre-release” draft of SEMI S2-0712 to the MESSC chairs.	Closed
2012Apr #06	Paul Trio, James Amano, and Sanjay Baliga	Determine the appropriate liaison between EHS Standards and EHS Division. Provide documentation/presentation of SEMI EHS Division objectives together with needs/requests for the NA EHS Standards Committee by mid-September 2012.	Open.
2012Jul #01	Paul Trio	Distribute the HB-LED Google Site to NA EHS TC members.	Closed.
2012Jul #na	NA EHS Committee	Assign a working group, to be chaired by Lauren Crane and Cliff Greenberg, to handle the discussion of EHS needs from PV and HB-LED. <i>[At SEMICON West 2012, the NA EHS committee discussed developing a workshop (or “STEP light”) where EHS committee members would talk with PV and HB-LED members. The goal is to inform them what our existing Safety Guidelines offers and how these could (or could not) meet their needs. In turn, PV and HB-LED members can help identify gaps (if any) that may eventually develop into a standards activity.]</i>	Closed. Dealt with other means.

7 New Business

7.1 Ballot Authorization

#	When	SC/TF/WG	Details
4316I	Cycle 1, 2013	S22 TF	Line Item Revision to SEMI S2, <i>Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment</i> , and SEMI S22, <i>Safety Guideline for the Electrical Design of Semiconductor Manufacturing Equipment</i> Revisions related to clarifying the FECS criteria of S2 and S22
5521	Cycle 1, 2013	NA EHS Committee, 5-Year Review	Reapproval of SEMI S1, <i>Safety Guideline for Equipment Safety Labels</i>
5522	Cycle 1, 2013	S6 Revision TF	Reapproval of SEMI S6, <i>EHS Guideline for Exhaust Ventilation of Semiconductor Manufacturing Equipment</i>
4683B	Cycle 1, 2013 (or C2-13)	S2 Chemical Exposure TF	Line Item Revisions to SEMI S2, <i>Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment</i> Delayed Revisions Related to Chemical Exposure
5000C	Cycle 1, 2013 (or C2-13)	S2 Interlock Reliability TF	Line Item Revisions to SEMI S2, <i>Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment</i> Delayed Revisions Related to Interlock Reliability and Selection (added as Related Information)
4449E	Cycle 2, 2013	S2 Ladders & Steps TF	Revision to SEMI S2, <i>Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment</i> . Revisions related to stairs, ladders, platforms, and fall protection
5009B	Cycle 2, 2013	Ergonomics TF	Delayed Line Items Revisions to SEMI S8, <i>Safety Guidelines for Ergonomics Engineering of Semiconductor Manufacturing Equipment</i>
5357A	Cycle 2, 2013	S2 Non-Ionizing Radiation TF	Line Item Revisions to SEMI S2, <i>Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment</i> Delayed Revisions Related to Non-Ionizing Radiation

Motion: NA EHS TC approves distribution of ballots as shown above
By / 2nd: Ron Macklin (Macklin & Associates) / Sean Larsen (Lam Research AG)
Discussion: None
Vote: 8-0. Motion passed.

7.2 Leadership Changes

Group	Previous Leader	New Leader
Manufacturing Equipment Safety Subcommittee (MESSC)		Lauren Crane (KLA-Tencor) was appointed as SC co-chair.

Motion: NA EHS TC approves appointing Lauren Crane as MESSC co-chair.
By / 2nd: Chris Evanston (Salus) / Cliff Greenberg (Nikon)
Discussion: None
Vote: 10-1. Motion passed.

7.3 U.S. Photovoltaic Manufacturing Consortium (PVMC) Presentation

Andy Rudack presented. Of note:

- Mission of DOE SunShot Initiative
 - Deliver grid-parity solar PV by 2020, ~75% reduction in cost of PV systems. Advance large-scale US solar manufacturing. Drive national deployment of solar energy
 - SunShot Initiative – focused on R&D and cost reductions

- PV Cells / Modules
- Balance of System
- Power Electronics
- April 11, 2011 – award recipients of solar cell/module
 - Industry-led consortium, SEMATECH – PVMC [\$62.5M]
 - Copper indium gallium selenide (CIGS) pilot line, in partnership with CNSE
 - c-Si metrology and wafering technologies, in partnership with UCF/FSEC in Florida
 - PV manufacturing development facility – SVTC [\$30.0M]
 - University-led consortium – BAPVC (Stanford/Berkeley) [\$25.0M]

U.S. PVMC

- ESH Focus
 - Part of our DOE deliverables
 - Cross-Cutting Programs (BOS/Education/Environmental)
 - Scott McWilliams - Director
 - Leverage ISMI expertise (Steve Trammel)
- Standards/Codes
 - Part of our DOE deliverables
 - Participate, not recreate
 - Not a Standards Development Organization (SDO)
 - Facilitate/coordinate efforts
 - Consortiums ideal for standards/codes
 - Import industry needs
 - Consensus
- Working Group Meeting on Standards
 - Held June, 2012 (IEEE PVSC in Austin, TX)
 - All major SDOs participated: IEC, SEMI, UL, ASTM, SOLAR ABCs
 - Presentation and report: http://www.uspvmc.org/proceedings/2012_IEEE_PVSC/index.html
 - Product
 - Standards Dashboard
 - Annual SDO Forum
- PV Standards Dashboard
 - Keep industry members aware of SDO activities - standards, progress, groups
 - Provide SDO with potential gaps
 - SDO benefits:
 - Help increase activity awareness
 - Recruit volunteers

- Dashboard: <http://standards.uspvmc.org/index.html>
- IEEE-PVSC (Photovoltaic Specialists Conference)
 - Held June, 2012 (IEEE PVSC in Austin, TX)
 - ESH Tutorial
 - Cancelled – lack of registrants
 - ESH Session
 - Silane safety, eol recycle, NREL ESH, NRTL process...
 - Poster
 - “Lessons learned in 3D Interconnect Safety Standards applicable to the PV Industry”
 - Dialogue
 - Salus, SEMI ESH Committee, SESA, ISCS...
- 2013 Plans
 - Form ESH Working Group
 - Secure Members
 - Identify challenges
 - Pareto
 - U.S. PVMC Deliverables
 - Create ESH program
 - Initiate ESH projects
 - Leverage ISMI ESH Expertise
 - Discussion
 - PV perception of SEMI ESH focus?
 - S2/S8 lite?
 - SEMI/U.S. PVMC engagement?
 - TFOF/SNARF?
 - PV/SESHA engagement?
 - S²ESHA?

Additional Discussion:

- Sean Larsen stated that this committee needs help in identifying EHS needs from PV companies. Lauren Crane added that once these needs are identified (and that PV companies are made aware of available standards), the committee can then look into whether forming a TF or initiating an activity would be appropriate. Chris Evanston emphasized that the EHS Standards Committee is willing to work with the PV industry. He added that a forum is still needed for an open dialogue.

Attachment: 19, U.S. PVMC Presentation

7.4 NA EHS Proposed Spring 2013 Meeting Schedule

April 1-4, 2013

SEMI Headquarters

3081 Zanker Road

San Jose, California 95134

Monday, April 1

- S22 (Electrical Safety) TF (9:00 AM to 10:30 AM)
- S6 Revision TF (10:30 AM to 12:00 Noon)
- EHS Process Meeting / Lunch Break (12:00 Noon to 1:00 PM)
- S2 Non-Ionizing Radiation TF (1:00 PM to 2:00 PM)
- S2 Chemical Exposure TF (2:00 PM to 3:30 PM)
- S2 Interlock Reliability (3:30 PM to 5:00 PM)
- Seismic Protection Japan TF (5:00 PM to 6:00 PM)

Tuesday, April 2

- {Open} (9:00 AM to 10:00 AM)
- S2 Ladders & Steps TF (10:00 AM to 12:00 Noon)
- Fail-Safe Fault-Tolerant TF (1:00 PM to 2:00 PM)
- S2 Machinery Directive Mapping TF (2:00 PM to 3:00 PM)
- S1 5-Year Review Discussion (3:00 PM to 3:30 PM)
- [I&C Committee] Energy Saving Equipment Communication (3:00 PM – 6:00 PM)
- S8 Ergonomics TF (3:30 PM to 5:00 PM)
- S23 Revision Japan TF (5:00 PM to 6:00 PM)

Wednesday, April 3

- [ICRC (9:00 AM to 12:00 Noon)]
- PV Coordination Interest Group (1:00 PM to 2:00 PM)
- MESSC (2:00 PM to 4:00 PM)
- Fire Protection TF (4:00 PM to 5:00 PM)

Thursday, April 4

- EHS Committee (9:00 AM to 6:00 PM)

So that meeting attendees can plan their travel schedules accordingly, the committee agreed that the last day to make changes to the NA Standards Spring 2013 meeting schedule is March 15, 2013.

7.5 New Action Items

<i>Item #</i>	<i>Assigned to</i>	<i>Details</i>
2012Nov #01	Paul Trio	Post EHS voting template, TF leader kit, and F2F meetings bridge info on the EHS committee page (http://www.semi.org/en/node/41746) on the SEMI Standards website.
2012Nov #02	Paul Trio	Include MESSC discussion topics in the NA EHS liaison report.
2012Nov #03	Alan Crockett	Report on the progress of the Energy Saving Equipment Communication (ESEC) TF at the next NA EHS committee meeting (in Spring 2013).
2012Nov #04	Paul Trio	Ask regional SEMI staff to assist in the translation or help identify members who would be able to assist in the translation and proofing of the HEI/LOTO survey and survey responses.

8 Next Meeting and Adjournment

The next meeting of the North America Environmental, Health, and Safety committee is scheduled for April 4 in conjunction with the NA Standards Spring 2013 meetings. Adjournment was at 1:50 PM.

Respectfully submitted by:

Paul Trio
 Senior Manager, Standards Operations
 SEMI North America
 Phone: +1.408.943.7041
 Email: ptrio@semi.org

Minutes approved by:

Chris Evanston (Salus Engineering), Co-chair	
Sean Larsen (Lam Research AG), Co-chair	January 8, 2013
Eric Sklar (Safety Guru, LLC), Co-chair	Not present

Table 6 Index of Available Attachments #1

#	<i>Title</i>	#	<i>Title</i>
01	SEMI Standards Required Meeting Elements	11	S23 Revision TF Report
02	NA EHS SEMICON West 2012 meeting (July 12) minutes	12	Fail-Safe / Fault-Tolerant TF Report
03	Europe EHS Committee Report	13	S1 5-Year Review Discussion Report
04	Japan EHS Committee Report	14	S2 Chemical Exposure TF Report
05	Leadership Report	15	S6 Revision TF Report
06	SEMI Staff Report	16	S2 Non-ionizing Radiation TF Report
07	4449D LI 1 Compiled Responses	17	S22 TF Report
08	Document #5000 Next Steps	18	HEI/LOTO Discussion Report
09	5000B Compiled Responses	19	U.S. PVMC Presentation
10	MESSC Report		

#1 Due to file size and delivery issues, attachments must be downloaded separately. A .zip file containing all attachments for these minutes is available at www.semi.org. For additional information or to obtain individual attachments, please contact Paul Trio at the contact information above.