EH&S NA TC Chapter

Meeting Summary and Minutes

NA Spring Standards Meeting

Thursday, April 6, 2023

9:00 AM – 3:00 PM Pacific

SEMI HQ, Milpitas, CA

**TC Chapter Announcements**

Next TC Chapter Meeting

Thursday, July 13, 2023 in conjunction with SEMICON West Meetings at the Moscone Center, San Francisco, CA. Check [www.semi.org/en/standards](http://www.semi.org/en/standards) for the latest update.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Meeting Attendees  **Co-Chairs:** Chris Evanston (Salus Engineering International), Sean Larsen (Lam Research), Bert Planting (ASML)  **SEMI Staff:** Kevin Nguyen (SEMI) | | | | | |
| **Company** | **Last** | **First** | **Company** | **Last** | **First** |
| *Axcelis Technologies* | *Brick* | *Clifton* | **Tokyo Electron** | **Kwok** | **Jasen** |
| *National Taiwan University* | *Chang* | *Luh-Maan* | *Lam Research* | *Larsen* | *Sean* |
| *Lam Research* | *Crane* | *Lauren* | **Tokyo Electron** | **Mashiro** | **Supika** |
| *AGC* | *Elkassmi* | *Ahmed* | KLA | McDaid | Raymond |
| *Salus Engineering* | *Evanston* | *Chris* | **SCREEN** | **Nishimura** | **Takayuki** |
| *VAD Consulting* | *DeGiorgio* | *Vincent* | **Tokyo Electron** | **Petraszak** | **Andrew** |
| **Applied Materials** | **Faust** | **Bruce** | **ASML** | **Planting** | **Bert** |
| *Cymer, ASML* | *Frankfurth* | *Mark* | *Texas Instruments* | *Schwab* | *Paul* |
| *Nikon Precision* | *Girlea* | *Lucian* | *Safety Guru* | *Sklar* | *Eric* |
| *Applied Materials* | *Gross* | *Ben* | *MURATA Machinery* | *Tominaga* | *Tadamasa* |
| **Nikon Precision** | **Kelly** | **Padraig** |  |  |  |

*Italic* indicates online participant. Bold indicates in person participant.

| Leadership Changes | | |
| --- | --- | --- |
| WG/TF/SC/TC Name | Previous Leader | New Leaders |
| S6 Revision Task Force | Glenn Holbrook (ASM) | Glenn Holbrok (ASM)  Eric Sklar (Safety Guru) |

Committee Structure Changes

| Previous WG/TF/SC Name | New WG/TF/SC Name or Status Change |
| --- | --- |
| S2 Interlock TF | TF was disbanded |
| <none> | S2 Major Revision TF |

Ballot Results

|  |  |  |
| --- | --- | --- |
| *Document #* | *Document Title* | *Committee Action#1,#2* |
| 6940A | Line Item Revisions to SEMI S2-0821, Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment (Delayed Revisions Related to Mention of SEMI S18 and the Invocation of SEMI S30) |  |
| Line Item 1 - Add Delayed Revision Section X to SEMI S02-0821 | Passed as balloted |
| Line Item 2 - Add Delayed Revision Section Y to SEMI S02-0821 | Passed as balloted |
| 6944A | Line Item Revisions to SEMI S2-0821, Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment (Delayed Revisions Related to Fire Protection) |  |
| Line Item 1 -Delayed Revision Section X to SEMI S02-0821 | Passed as balloted |
| Line Item 2 - Add Delayed Revision Section Y to SEMI S02-0821 | Passed as balloted |
| 6831C | Revision to SEMI S1-1015 Safety Guideline for Equipment Safety Labels | Passed with technical changes. Ratification ballot will be issued. |
| 6941A | Line Item Revision to SEMI S30-0719E, Safety Guideline for Use of Energetic Materials in Semiconductor R&D and Manufacturing Processes (regarding heating of piping) |  |
| Line Item 1 - Modify sections 5, 8 and 17.3.3. | Failed and returned to TF for rework and reballot |
| Line Item 2 - Adding, as ¶17.8.8, criteria specific to managing the risks of loss of heating downstream of process chambers. | Failed and returned to TF for rework and reballot |

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

#2 **Failed** ballots and line items were returned to the originating task forces for re-work and re-balloting or abandoning.

Ratification Ballot Results

| *Document #* | Document Title | ISC A&R Action | A&R Forms |
| --- | --- | --- | --- |
| None |  |  |  |

#1 **Passed** Ratification ballots will be submitted to SEMI publication for final processing.

#2 **Failed** Ratification ballots were returned to the originating task forces for re-work and re-balloting or abandoning.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | Activities Approved by the GCS between meetings of the TC Chapter | | | | | --- | --- | --- | --- | | # | Type | SC/TF/WG | Details | | None |  |  |  |   Authorized Activity |

| *#* | *Type* | *SC/TF/WG* | *Details#1* |
| --- | --- | --- | --- |
| 7021 | SNARF | S2/S22 Revision TF | Line Items Revisions of SEMI S2, Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment, and S22 Safety Guideline for the Electrical Design of Semiconductor Manufacturing Equipment |
| 7022 | SNARF | Energetic Materials EHS TF | Line Item Revision to SEMI S30, Safety Guideline for Use of Energetic Materials in Semiconductor R&D and Manufacturing Processes (energetic materials) |
| 7023 | SNARF | S6 Revision TF | Reapproval of SEMI S6, Environmental, Health, and Safety Guideline for Exhaust Ventilation of Semiconductor Manufacturing Equipment |

#1 SNARFs and TFOFs are available for review on the SEMI web site at: [http://downloads.semi.org/web/wstdsbal.nsf/tfofsnarf](http://downloads.semi.org/web/wstdsbal.nsf/TFOFSNARF)

Authorized Ballots

| *#* | *When* | *TF* | *Details* |
| --- | --- | --- | --- |
| R6831C | Cycle 4 or 5-2023 | S1 Revision TF | Ratification Ballot - Revision of SEMI S1-1015, Safety Guideline for Equipment Safety Labels |
| 6884A | Cycle 4 or 5-2023 | S2 Mechanical TF | Line Item Revision to SEMI S2, Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment (Mechanical) |
| 6907 | Cycle 4 or 5-2023 | S7 Revision TF | Revision to SEMI S7, Safety Guideline for Evaluating Personnel and Evaluating Company Qualifications |
| 6981 | Cycle 4 or 5-2023 | Ergonomics TF | Line Item Revisions to SEMI S8, Safety Guideline for Ergonomics Engineering of Semiconductor Manufacturing Equipment |
| 7021 | Cycle 4 or 5-202 | S2/S22 Revision TF | Line Items Revisions of SEMI S2, Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment, and S22 Safety Guideline for the Electrical Design of Semiconductor Manufacturing Equipment |
| 7022 | Cycle 4 or 5-202 | Energetic Materials EHS TF | Line Item Revision to SEMI S30, Safety Guideline for Use of Energetic Materials in Semiconductor R&D and Manufacturing Processes (energetic materials) |
| 7023 | Cycle 4 or 5-202 | S6 Revision TF | Reapproval of SEMI S6, Environmental, Health, and Safety Guideline for Exhaust Ventilation of Semiconductor Manufacturing Equipment |

Granted a One-Year Extension

| # | TF | Title | Expiration Date |
| --- | --- | --- | --- |
| None |  |  |  |

SNARF(s) Abolished

| # | TF | Title |
| --- | --- | --- |
| 6941 | Energetic Materials EHS TF | Line Item Revision to SEMI S30-0719E, Safety Guideline for Use of Energetic Materials in Semiconductor R&D and Manufacturing Processes (Regarding heating of piping) |

| Standard(s) to receive Inactive Status | |
| --- | --- |
| Standard Designation | Title |
| None |  |

| New Action Items | | |
| --- | --- | --- |
| Item # | Assigned to | Details |
| None |  |  |

| Previous Meeting Action Items | | |  |
| --- | --- | --- | --- |
| Item # | Assigned to | Details | Status |
| Nov10-2022#1 | S23 Global TF leaders and EH&S NA TC Co-chairs | EH&S NA TC Chapter to present to the NARSC and request the Regs SC to change procedure by allowing one ballot action to a create from an original standard to two or more new standards one of which might retain the original standard designation. | Abandoned |

1. **Welcome, Reminders, and Introductions**
   1. Bert Planting called the meeting to order at 9:00 AM. The meeting reminders on antitrust, intellectual property, and holding meetings with international attendance were reviewed. Attendees introduced themselves.
2. **Review of Previous Meeting Minutes**
   1. The TC Chapter reviewed the minutes of the previous meeting.

|  |  |
| --- | --- |
| **Motion:** | Accept the minutes as written. |
| **By / 2nd:** | By: Lauren Crane / Lam Research Corporation  Second: Andrew Petraszak / TEL Technology Center America |
| **Discussion:** | None |
| **Vote:** | 13-0. Motion passed. |

Attachment: EHS NA TC Minutes 11102022r1.docx

1. **Ballot Review**

**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.

* 1. TC Chapter adjudication of ballots is detailed in the Audits & Review (A&R) Subcommittee Forms for procedural review. The A&R forms are available as attachments to these minutes. The attachment file name for each balloted document is provided under each ballot review section below.
  2. ***Doc. 6940A,*** ***Line Item Revisions to SEMI S2-0821, Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment (Delayed Revisions Related to Mention of SEMI S18 and the Invocation of SEMI S30)***
     1. Line Item 1 - Add Delayed Revision Section X to SEMI S02-0821
* Passed the TC Chapter review as balloted. Refer to attachments below for full details.
  + 1. Line Item 2 - Add Delayed Revision Section Y to SEMI S02-0821
* Passed the TC Chapter review as balloted. Refer to attachments below for full details.

**Attachment: 6940A\_CompiledResponses\_tf07mar23b\_tf04apr23a**

**Attachment: 6940A AR**

* 1. ***Doc. 6944A, Line Item Revisions to SEMI S2-0821, Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment (Delayed Revisions Related to Fire Protection)***
     1. Line Item 1 - Add Delayed Revision Section X to SEMI S02-0821.
* Passed the TC Chapter review as balloted. Refer to attachments below for full details.
  + 1. Line Item 2 - Add Delayed Revision Section Y to SEMI S02-0821.
* Passed the TC Chapter review as balloted. Refer to attachments below for full details.

**Attachment: 6944A A&R**

* 1. ***Doc. 6941A, Line Item Revision to SEMI S30-0719E, Safety Guideline for Use of Energetic Materials in Semiconductor R&D and Manufacturing Processes (regarding heating of piping)***
     1. Line Item 1 - Modify sections 5, 8 and 17.3.3.
* Motion: To find AMAT-1 Negative is related and persuasive. **(Needs > 1/3 votes to pass.)**  
  Reason:  
  By: Eric Sklar / Safety Guru, LLC  
  Second: Lauren Crane / Lam Research  
  Discussion:  
  Result: 14-Y 1-N Voting Result: Pass - 93.33%
* Final Action  
  Motion: Line item 1 failed TC Chapter review and will be returned to the TF for rework.  
  Reason: None.  
  By: Eric Sklar / Safety Guru, LLC  
  Second: Lauren Crane / Lam Research Corporation  
  Discussion:  
  Result: 14-Y 0-N Voting Result: Pass - 100.00%
* Line Item 1 failed and returned to TF for rework and reballot. Refer to attachment below for details of the negative and the TF report.
  + 1. Line Item 2 - Adding, as ¶17.8.8, criteria specific to managing the risks of loss of heating downstream of process chambers.
* Motion: To find LAM LC17 Comment is related and persuasive. **(Needs > 1/3 votes to pass.)**  
  Reason:  
  By: Eric Sklar / Safety Guru, LLC  
  Second: Lauren Crane / Lam Research.  
  Discussion:  
  Result: 15-Y 0-N Voting Result: Pass - 100%
* Final Action  
  Motion: Line item 2 failed TC Chapter review and will be returned to the TF for rework.  
  Reason: None.  
  By: Lauren Crane / Lam Research Corporation  
  Second: Lucian Girlea / Nikon Precision Inc.  
  Discussion:  
  Result: 15-Y 0-N Voting Result: Pass - 100.00%
* Line Item 2 failed and returned to TF for rework and reballot. Refer to attachment below for details of the negative and the TF report.

**Attachment: 6941A\_CompiledResponses\_es28mar23c\_tf04apr23c**

* 1. ***Doc. 6831C, Revision to SEMI S1-1015 Safety Guideline for Equipment Safety Labels***
* Before the ballot adjudication starts, Eric Sklar asked for a straw poll for the sense of the committee on going through the ballot review with technical changes for Ratification Ballot. Base on the favorable results, the ballot review moved forward.
  + 11 in favor
  + 3 not in favor
* The ballot passed the TC Chapter review with technical changes. Ratification Ballot will be issued. Refer to attachments below for full details.

**Attachment: 6831C\_CompiledResponses\_tf04apr23a\_es04apr23c**

**Attachment: 6831C A&R**

1. **Subcommittee & Task Force Reports**
   1. ***S3 Revision TF***
      1. Andy Petraszak reported.

* TF continues working on doc. 6830, Revision to SEMI S3-1211 (Reapproved 1017)E Safety Guideline for Process Liquid Heating Systems.
  + Held a meeting this week
  + Briefly reviewed initial drafted ballot from TF input.
  + Discussed next steps.
  + Current Projected Path Forward:
    - Have the TF review the draft ballot and correct any items found by the TF of the draft ballot – Present onward.
    - Evaluate ballot authorization during SEMICON WEST Meeting.

**Attachment: S3 Report Spring 2023**

* 1. ***S2 Mechanical TF***
     1. Andy Petraszak reported.
* Drafting doc. 6884A, Line Item Revision to SEMI S2-0821, Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment (Subject: Delayed Revisions related to lifting equipment and hinged loads (§§ 5, 18.6, and 18.7))
  + Held TF meetings starting in March.
  + Held a meeting this week.
  + Clarified the scope of Section 18.6.
  + Have direction on addressing “subsequently produced” equipment.
  + Continue to resolve Negatives and Comments
  + Intend to submit ballot in time for adjudication at SEMICON West Meeting

**Attachment: S2 Mech Report Spring 2023**

* 1. ***Environmental Performance Rating (EPR) TF***
     1. Ben Gross reported:
* Work in progress
* Discussing general structure of the document
* Working on defining real metrics to be used for environmental friendliness and energy efficiency
* A taxonomy for relevant system with variety of data is in the work
* Everyone is invited to the task force. Please contact Ben Gross or SEMI staff for addition to the invitation.

**Attachment: 20230406 Environmental Performance Metric - TF Update**

* 1. ***S10 Risk Assessment TF***
     1. Eric Sklar reported:
* Doc. 6887A, Revision to SEMI S10-1119, Safety Guideline for Risk Assessment and Risk Evaluation Process
  + Ballot passed with technical changes at SEMICON West. Ratification ballot R6887A was issued in cycle 6-22 and subsequently approved by A&R.
  + Awaiting next proof, but we should have a new Revision of SEMI S10 in a matter of weeks
  + Publication of SEMI S10-0423 will allow us to ballot our next round of changes:
    - A few things we agreed at/prior to the November 2022 meetings

**Attachment: S10\_Report\_es06apr23a**

* 1. ***Flammable Gas TF***
     1. Bert Planting reported:
* Drafting doc. 6980, Line Item Revisions to SEMI S2-0821, Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment (Re: Sections 13.7 and 23.5.5)
  + Editorial and main body (section 13 and 23) changes to SEMI S2
  + Will resume teleconferences in coming weeks.

**Attachment: Hydrogen addition SEMI-Spring 2023**

* 1. ***Manufacturing Equipment Safety Subcommittee (MESSC)***
     1. Lucian Girlea reported:
* SEMI S2 delayed revisions
  + TCC to pay close attention to the Deferred Effective Dates for future revisions
* References to External Standards
  + In S2, we have numerous references to external standards
    - Some of these references have expectations for detailed reports to be generated (S8 SESC, S3, S14 (fire risk assessment), S6 (tracer gas testing), etc.)
  + Request S2 Major Revision TF to update such references with the report expectations and what is “good enough” for compliance (see S30 and S18).
* SEMI S2 scope
  + S2 Mechanical TF discussed the testing requirements for Subsequently Produced Lifting Equipment
    - S2 Mechanical TF agreed to convert, to NOTEs the normative text asking for testing of subsequently produced lifting equipment (including hinged loads).

**Attachment: MESSC SEMI 2023 Spring notes**

* 1. ***S2 Major Revision TF***
     1. Lucian Girlea reported:
* Previously S2 Interlocks Design TF.
  + Due to expanded scope, the TF was disbanded.
* Japan S2 major revision liaison TF
  + Lauren Crane: Any inputs from Japan yet?
  + Supika Mashiro: The TF was recently formed, no feedback yet.
* S2 Major Revision.
  + Discussion:
    - Bert Planting said more considerations and discussions are needed as major revision will require close coordination with other TFs and will require lot of manpower.
    - Lucian Girlea said S2 major revision plan was discussed in past meetings, the last one was during SEMICON West 2022.
    - Sean Larsen said this effort should be coordinated with other TFs, but it will be interesting to see how it will unfold.
    - Lauren Crane: We need to get a cohesive structure. Much of this effort is trying to correct what happened 25 years ago.
    - Bert Planting: If we opened for a major revision, maybe we should investigate countries like Korea, Taiwan, Japan legislations and expand the scope of S2.
    - Lauren Crane: We investigate the concerns that people bring in the task force.
    - Eric Sklar: SEMI S2 is not a regulatory compliance document. So it does not make sense since S2’s purpose is about safety.
    - Bert Planting: We should make S2 that serves the industry, perhaps it is time to expand the scope.
    - Eric Sklar: If the industry needs a worldwide compliance document, then they should come and write one. It does not mean that S2 will need to become one.
    - Chris Evanston: This issue is not about countries; it is more on the end user. This document is used for contractual obligation between the end user and equipment supplier. Plenty of evidence proves that Asian end users are drifting away from S2 for other documents. So we should try to ask them for additional inputs.
    - Lauren Crane: Nice concept, but passionate people do not come to the Standards meetings.
    - Raymond McDaid: We need to get the end users involved and pull them in. The whole point of SEMI S2 is to have a common specification, otherwise, you would end up having a different specification for each customer. Then S2 will become more irrelevant.
    - Lauren Crane: We tried this approach with the S2 Korean High Pressure Gas, but it was not a success.
    - Clif Brick: The S2 Korean High Pressure was a failure, so we should try a different approach.
    - Sean Larsen: The problem with Korean High Pressure was that they try to solve the issue with 1 tool set, they need to look for the bigger problem. It is not sure how to cultivate that.
    - Lauren Crane: What else can be done other than trying to get the end users involved?
    - Chris Evanston: Language barrier is an issue.
    - Lauren Crane: Perhaps SEMI should provide a real time technical translator.
    - Clif Brick: It sounds like the higher managements of the end users who have the control of the common specification document, so we need to get them involved.
    - Chris Evanston: Back in the day, the same issue existed with IBM in the early 90s. However, we had an English speaker representing for IBM, whereas this is happening Asia.
    - Supika Mashiro: There is a big culture gap. In Asia, the government has lot of power over companies. Also, most of the time, suppliers accept the end user’s request. So there is no interest for the end user to come to the meeting.
    - Bert Planting: The end user is not pleased with SEMI S2, some customers even provide their own common specifications in addition of S2. There is a clear sign that something has to change. Bert will visit some customers in a few weeks, and hopefully, he will shed some light.
    - Lauren Crane: We need to ask for copyright release for the mentioned common specification. So we can discuss in the TF to implement in SEMI S2.
    - Raymond McDaid: Will also meet with a customer end of this month and will also bring this issue up.
  + Motion: Adopt the S2 Major Revision TFOF and disband S2 Interlock TFOF  
    By: Eric Sklar / Safety Guru, LLC  
    Second: Lucian Girlea / Nikon Precision Inc.  
    Discussion:
    - Bert Planting: Coordinate with S2 Mechanical? Should that be one major effort to include that as well?
    - Supika Mashiro: As long as they are targeting a specific section, they can occur concurrently.
    - Supika Mashiro: My concern is overlapping with MESSC.
    - Bert Planting: Suggest to discuss this proposal at SEMICON West
    - Eric Sklar: SNARF, not TFOF, will dictate ballot. Whether it is a line item or major revision, SNARF will be used.
    - Lauren Crane: If Bert wants to bring the organizational structure, please come up with the plan.
    - Clif Brick asked Bert if he has read the latest S2 Major revision draft? It appears Bert has not been participating in the TF teleconferences.
    - Bert Planting said he will pay close attention in future meetings since the current meeting time is not desirable for European time zone.
    - Eric Sklar: The TF name is just a replacement.
    - Lauren Crane: Would a global TF encourage more participation?
    - Supika Mashiro: For the Global Seismic TF case, depending on the topic, you could get certain feedback and participation .
    - Chris Evanston: It is not a bad idea. But for now, we should go forward and see how it will evolve.

Result: 13-Y 0-N Voting Result: Pass - 100.00%.

**Attachment: TFOF SEMI S2 Major Revision 20230406**

**Attachment: S2 Interlocks Design SEMI 2023 Spring notes**

* 1. ***S6 Ventilation TF***
     1. Eric Sklar reported:
  + New co-leader - Eric Sklar (Safety Guru)
  + Motion: Accept Eric as the co-leader of S6 TF  
    By: Eric Sklar / Safety Guru, LLC  
    Second: Lucian Girlea / Nikon Precision Inc.  
    Discussion:  
    Result: 12-Y 0-N Voting Result: Pass - 100.00%.
* The TF would like to issue Reapproval for SEMI S6-0618, Environmental, Health, and Safety Guideline for Exhaust Ventilation of Semiconductor Manufacturing Equipment.

**Attachment: SEMI S6 - Spring 2023- Summary3**

* 1. ***S23 Global TF***
     1. Lauren Crane reported.
* An editorial error was identified by Carlo Luijten. Eric has drafted a PCR (Publication Change Request) that was approved in a past US-TC chapter meeting. The revised S23 version is not yet published.
* SEMI S23-1021e - Guide for Conservation of Energy, Utilities and Materials Used by Semiconductor Manufacturing Equipment
  + Because of the challenges of transitioning to two documents (an S23 Test Method & a new Guide), the TF has decided to turn S23 into a Test Method with guidance information in an Appendix.
* The TF has been working mainly on the wording of the Appendix and most currently the equipment state definitions and transitions.
* There is a draft road-mapping template queued for review by the Task Force
* The IRDS roadmap is planning to use S23 concepts to characterize the energy efficiency of factories.
* SEMATECH document references in S23 are likely going to be deleted because SEMI staff have not yet secured “hosting” agreement with the SEMATECH IP management staff.

**Attachment: 2023 S23 US Spring TF mtg & rpt Crane r1**

* 1. ***S2 Seismic Liaison TF***
     1. Lauren Crane reported.
* No meeting during Spring 2023.
* Previous meeting - Discussed retaining the “anticipated seismic forces” as they are now, justified by the lack of reports in the awareness of vocal task force members that equipment is not surviving seismic events sufficiently; and adjust the RI to better explain the genesis of the values.

* 1. ***Fire Protection TF***
     1. Eric Sklar reported.
* Doc. 6944A, Line Item Revisions to SEMI S2-0821, Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment (Delayed Revisions Related to Fire Protection)
  + Ballot passed.
* Old Business
  + Adding performance criteria (Such as effectiveness, fire size to be considered) for detection and protection systems
  + Adding design criteria (such as treatment of pyrophoric materials) for detection and protection systems
  + Should exhaust ventilation be reduced or stopped if a fire is detected?
* New Business
  + PFAS regulation is putting supply of fluoropolymers that conform to FM4910 at risk
  + Lauren Crane: What is the common fire suppression agent?
  + Eric Sklar: CO2 is common, other blended gases are also used. No catalog is available at the moment, but he can check with Matt Wyman if interested.

**Attachment: FireProt\_Report\_es06apr23b**

* 1. ***S1 Labels TF***
     1. Eric Sklar reported.
* Doc. 6831C, Revision to SEMI S1-1015 Safety Guideline for Equipment Safety Labels
  + Passed with technical changes. Ratification ballot will be issued in cycle 4-2023.

**Attachment: S1\_Report\_es06apr23a**

* 1. ***Energetic Materials TF***
     1. Eric Sklar reported.
* Doc. 6941A, Line Item Revision to SEMI S30-0719E, Safety Guideline for Use of Energetic Materials in Semiconductor R&D and Manufacturing Processes (Regarding heating of piping)
  + Ballot failed.
* New SNARF, Line Item Revision to SEMI S30, Safety Guideline for Use of Energetic Materials in Semiconductor R&D and Manufacturing Processes (energetic materials)
  + Allows inclusion of a new matter (use of the term “byproduct”) in the same ballot as the third attempt to address matters in the 6941 and 6941A ballots.
  + Motion: Withdraw existing SNARF 6941 and approve the new SNARF for Line Item Revisions of S30  
    By: Eric Sklar / Safety Guru, LLC  
    Second: Lauren Crane / Lam Research  
    Discussion:
    - Sean Larsen: The Regs does not allow changing the SNARF’s scope of previous ballot 6941.
    - Supika Mashiro: Recommend withdraw existing SNARF 6941 first and approve the new SNARF.
    - Lauren Crane: What is the purpose of listing detailed sections on the SNARF?
    - Sean Larsen: To give ahead up to the other groups of the intended purpose of the activity listed in the SNARF.
    - Eric Sklar: Amended the motion to include both withdrawal of SNARF 6941 and approve new SNARF.
  + Result: 14-Y 1-N Voting Result: Pass - 93.33%.
* Ballot will be issued in cycle 4 or 5-2023 for review at SEMICON West

**Attachment: EnergeticMatls\_Report\_es06apr23a**

**Attachment: SNARF\_LIs\_S30\_es06apr23c**

* 1. ***S2 Control of Hazardous Energy (CoHE) TF***
     1. Eric Sklar reported:
* Topics under Discussion
  + Lockable electrical panels
  + Provision of EIDs as part of the equipment
  + CoHE by personal control of an unlocked EID
  + Clamshells for valve handles
  + Salvage from S20 (Withdrawn Safety Guideline re EIDs and their identification)
  + “Alternative Means”
* TF does not foresee being ready to ballot before SEMICON West

**Attachment: S2\_CoHE\_Report\_es06apr23a**

* 1. ***S12 Decontamination TF***
     1. Eric Sklar reported.
* Doc 6885A, Revisions to SEMI S2 related to SEMI S12
  + Approved at the Fall NA EHS TCC Meeting
  + SEMI S2-0821Ea has been published with the Delayed Revisions section making the changes related to S12.
* Continue to work on Doc. 6888A, Revision of SEMI S12-0211e, Environmental, Health and Safety Guideline for Manufacturing Equipment Decontamination
  + This is now understood to be a much larger project than had been envisioned
  + Continue current work on S12 rewrite
  + Do not foresee being ready for ballot in Cycle 5, so will wait until SEMICON West to request ballot authorization.

**Attachment: S12(decon)\_Report\_es06apr23a**

* 1. ***S8 Ergonomics TF***
     1. Paul Schwab reported.
* Task Force has been meeting regularly since January 2022 to work on changes to SEMI S8
* Reviewed proposed changes to document based on SNARF 6981 with a larger group during the April 5th meeting
* Task Force will try to submit a ballot for SEMI Standards 2023 Cycle 5, but that will be a stretch.
* S8 TF Document Storage at SEMI
  + <https://connect.semi.org/communities/community-home?CommunityKey=c1526656-40a4-4245-af86-34d3ecc68624>

**Attachment: SEMI-S8\_TF\_summary\_06APR2023**

* 1. ***S7 TF***
     1. Sean Larsen reported.
* The TF will work on preparing the ballot. The TF will aim for cycle 4 or 5 of 2023.
  1. ***S2/S22 TF***
     1. Chris Evanston reported.
* A SNARF for revision of S2/S22 was presented.
* Motion: Approve the SNARF for S2/S22 Modifications  
  By: Chris Evanston / Salus Engineering International  
  Second: Lucian Girlea / Nikon Precision Inc.  
  Discussion:  
  Result: 14-Y 0-N Voting Result: Pass - 100.00%.

**Attachment: SNARF S22 5 April 2023**

* 1. ***Other Documents of Interest***
     1. F47 TF
* Sean Larsen mentioned F47 is continuing to have discussion on voltage sags on 3 phases vs 1 phase. Discussion for different waveforms for the sag was reported. There seems to be a push to change for what can be tested or whether the current IPC will meet those requirements. The TF is looking to bring out another tester designer if anyone is interested.
  + 1. BIM TF
* Sean Larsen reported the Building Information Modeling (BIM) activity. The progress is slow. It is about facility software design.

1. **Liaison Reports**
   1. *ICRC Liaison*
      1. Bert Planting presented. The following topics were discussed:

* Machinery Directive (EU)
* Cyber Resilience Act (EU)
* PFAS
* BPA
* F-Gas
* PIP 3.1
* Other legislations of concern
* Progress Semiconductor Risk Handbook
* ICRC Charter
* Overview ww legislations table
* Need an additional co-chair for ICRC

**Attachment: ICRC SEMI-Spring meeting meeting 2023**

* 1. *Japan EH&S TC Chapter*
     1. Supika Mashiro reported.
* Last meeting
  + December 15, 2022 in conjunction with SEMICON Japan 2022
  + Tokyo Big Sight, Tokyo, Japan + OVTCCM (Hybrid)
* Next meeting
  + April 12, 2023
  + SEMI Japan Office + OVTCCM (Hybrid)
* Japan S2 Major Revision Liaison TF (JA-S2 revision LTF) (New!)
  + Charter:
    - To liaise with the S2 Major revision TF to receive the updates on S2 major revision discussions and provide FB including suggestions as deemed necessary.
    - To ease the obstacles for Japanese members to participate S2 revision discussion directly in the primary TF meeting due to language and time difference.
  + Scope:
    - Any topical area that is being discussed as belonging to “S2 major revision” covered by the primary TF.
  + Formal Linkages with TFs in Other Regions/ Locales
    - NA S2 Major Revision TF.
* S23 Revision Global Task Force
* Seismic Protection Global Task Force
* S18 Revision Task Force
  + TF Co-Leaders: Supika Mashiro (TEL), Moray Crawford (Hatsuta Seisakusho)
  + Called for participation in S18 Revision activities.
  + No specific activities have yet begun.
* Other Topics
  + SEMI S2 tutorial seminar was held for two months in August and September 2022.
  + A two-month seminar with the same content as in August will be held in October and November 2022.

**Attachment: JA EHS TC Chapter Liaison Report\_Mar. 2023\_R0**

* 1. *Taiwan EH&S TC Chapter*
     1. Kevin Nguyen reported.
* No new update since NA Fall 2022 meeting.
* Last meeting
  + July 7, 2022
* Next meeting
  + TBD
    1. *RSC/Co-chairs report*
    2. Chris Evanston reported.
* It appears there was a miscommunication during the NARSC report. Per Paul, Korea staff said under end users(Samsung and SK Hynix)’s impression, there was no issue with SEMI Safety Guidelines.
  + Paul Trio was in the EH&S meeting and clarified that the concern from the NARSC meeting in Fall 2022 was raised to SEMI Korea staff. Per regional staff, Paul said both Samsung and SK Hynix recognize that they used their own specifications. Perhaps, that person that SEMI Korea staff communicated to may not be fully aware of the whole situation.
  + Paul will make an effort to communicate with Korea staff and get the right person to get involved.
  + Bert Planting said the end users in Korea (e.g., Samsung) have their own specification in an Excel format. It was reportedly up to 15 different tabs within the Excel sheet. Thus, there is confusion here. He said it is an issue having to deal with both S2 and customer’s own specification. The best approach is to combine both S2 and customer’s common specification.
  + Lauren Crane asked Paul if he heard of S2 is becoming irrelevant in Korea?
  + Paul said no. He has not heard of any reports, but will try to sync with Korea to learn more.
  + Supika Mashiro said it can be frustrating for someone who is not fully aware of the situation and reported such statement. Supika said an EH&S division survey sent out several years ago, and it was concluded that Korea has no interest, but Japan, Europe and US have concerns on regulatory compliance. Supika will try to locate the survey and forward to EH&S co-chairs and SEMI Staff.
    - **Attachment: Korean Regulatory Survey Nov 4th SHARED Dec 20th+Discussion on results**
  + Lauren Crane asked if Paul has a means to get to the right people?
  + Paul said SEMI would use the existing contact. From a tactical side, maybe we should get those with the proper job title and higher up. Paul asked if the EH&S TC Chapter have any recommendations or suggestions on how to approach or how SEMI can help?
  + Lauren Crane suggested hiring a competent real time translator and come to the meeting, so we can fully understand end user’s issue and establish clear and concise communication.
  + Andy Petraszak also said there is direct correlation with SEMI Standards. He wonders why can’t they just reference SEMI standards as an equivalent? Are we missing something?
  + Bert Planting said in Korea, the EH&S guys may not be the decision makers.
  + Lauren Crane emphasized that the TF needs to get the end users in Korea to release the common specification document, so we can study and resolve this important issue.
  + Paul Trio suggested to recruit Samsung and SK Hynix to come to this committee, and the EH&S NA TC Chapter fully agreed with this proposal.
  + Chris Evanston proposed forming an Ad Hoc WG to provide feedback for SEMI for facilitation.
  + Paul suggested putting together a problem statement and a call to action concept. Also, perhaps list specific job function or safety product division to get to the end users involved.
  + Chris Evanston will form the working group and come up with a formal problem statement and ask SEMI to help mobilizing the discussion. If anyone is interested, please contact Chris. So far, the WG consists of the following folks who volunteered:
    - Andy Petraszak
    - Bert Planting
    - Chris Evanston
    - Lauren Crane
    - Lucian Girlea
    - Raymond McDaid
    - Sean Larsen, and
    - Vinny DeGiorgio.
* Publication backlog
  + Paul Trio said a new hire is coming soon. Several interviews were conducted. But it will take some time to train this person up to speed.
  + Also, SEMI is working with an internal checklist for SEMI staff to help improve the document quality. Likewise, there is a ballot author checklist underway. Hopefully, having both checklists will help improving documents to conform with SEMI Style Manual.
* Status of SEMATECH Documents
  + Paul Trio reported no feedback from SUNY after the first meeting with Paul Kelly and John Iacoponi held in Fall 2022. Paul made a further attempt by contacting their administrator, but still has not gotten a response.
  + Through the Standards volunteers, Paul Trio said SEMI were able to locate 17 (softcopies) out of 34 identified SEMATECH documents referenced in SEMI Standards.
  + Lauren Crane asked the fundamental question is whether or not SEMI can host them.
  + Paul Trio said through the initial conversation. SUNY wanted to locate all these files first, and it appears they have a hard time locating these soft copies after the merger from SEMATECH. Per Paul Trio, SUNY have not made a decision or discussed whether SEMI or SUNY will host these files. They want to have access to them.
  + Lauren Crane: can you send out the list of documents you have? Paul will send the latest version.
  + Supika Mashiro asked if SUNY wants to locate all the files first before a decision can be made? It may be hard, but why aren’t they letting SEMI to host since we already have soft copies on some documents?
  + Paul Trio said SUNY have a storage in their libraries, and they will go through and inform us later.
  + Andy Petraszak asked if members have soft copies, are we allowed to share? He wants to make sure members are not violating copyright by sharing these files.
  + Eric Sklar reported that he has a soft copy of some of the SEMATECH documents referenced in SEMI S23.
  + Lauren Crane requested Paul Trio to send an Excel file listing on the SEMATECH documents referenced in SEMI Standards.
  1. **SEMI Staff Report**
     1. Kevin Nguyen (SEMI) reported.
* SEMI upcoming event
  + SEMICON West, July 10-13, 2023
  + San Francisco, CA
* 2023 Critical Dates for SEMI Standards Ballots
  + <https://www.semi.org/en/collaborate/standards/ballots>
* Regulations and Procedure Manual Updates
  + Regulations (Feb 28, 2023)
    - Provide publication conditions for both Letter Ballot Review to pass procedural review and its Ratification Ballot is accepted.
    - If the Letter Ballot Review fails procedural review, the acceptance for the Ratification Ballot shall be nullified.
    - <https://www.semi.org/sites/semi.org/files/2023-02/Standards%20Regulations%20February%2028%2C%202023.pdf>
  + Procedure Manual (Feb 28, 2023)
    - Clarification on Line-Item Ballots are only permitted on revisions to already published identified portions of Standards or Safety Guidelines.
    - Revision of any Subordinate Standard causes the Publication Date Code of the Primary Standard to be considered as reapproved and it shall be given the (Reapproved mmyy) designation.
    - Contents of Background Statement Required for Revision of Subordinate/Primary Standard Letter Ballots.
    - <https://www.semi.org/sites/semi.org/files/2023-02/Procedure%20Manual%20February%2028%2C%202023.pdf>
* SEMI University
  + More than 360 on-demand courses created specifically for the semiconductor industry
  + www.semi.org/en/semi-university
* SEMI Standards Publications
  + Total SEMI Standards in portfolio: 1,075
    - Includes 320 Inactive Standards

Attachment: Staff Report March 2023 v3

1. **Old Business**
   1. None
2. **New Business**
   1. 5 year review (S1, S7, S12)
      1. These standards are due for 5 year review. Various task forces are reviewing them at the moment. No further action is needed.
   2. Upcoming Ballot Authorization
      1. The following ballots are authorized for the next meeting.

| *#* | *When* | *TF* | *Details* |
| --- | --- | --- | --- |
| R6831C | Cycle 4 or 5-2023 | S1 Revision TF | Ratification Ballot - Revision of SEMI S1-1015, Safety Guideline for Equipment Safety Labels |
| 6884A | Cycle 4 or 5-2023 | S2 Mechanical TF | Line Item Revision to SEMI S2, Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment (Mechanical) |
| 6907 | Cycle 4 or 5-2023 | S7 Revision TF | Revision to SEMI S7, Safety Guideline for Evaluating Personnel and Evaluating Company Qualifications |
| 6981 | Cycle 4 or 5-2023 | Ergonomics TF | Line Item Revisions to SEMI S8, Safety Guideline for Ergonomics Engineering of Semiconductor Manufacturing Equipment |
| 7021 | Cycle 4 or 5-202 | S2/S22 Revision TF | Line Items Revisions of SEMI S2 Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment, and S22 Safety Guideline for the Electrical Design of Semiconductor Manufacturing Equipment |
| 7022 | Cycle 4 or 5-202 | Energetic Materials EHS TF | Line Item Revision to SEMI S30, Safety Guideline for Use of Energetic Materials in Semiconductor R&D and Manufacturing Processes (energetic materials) |
| 7023 | Cycle 4 or 5-202 | S6 Revision TF | Reapproval of SEMI S6, Environmental, Health, and Safety Guideline for Exhaust Ventilation of Semiconductor Manufacturing Equipment |

Motion: Authorize the Documents in the table above for Letter Ballot in cycle 4 or 5 of 2023  
By: Lauren Crane / Lam Research Corporation  
Second: Eric Sklar / Safety Guru, LLC  
Discussion: None  
Result: 12-Y 0-N Voting Result: Pass - 100.00%

* 1. **Teleconferences**
* Eric Sklar presented the Google calendar for all EH&S TF teleconferences.
  + <https://calendar.google.com/calendar/u/0/embed?src=0dblgh8j8j0im0e8bt4jkbocs4@group.calendar.google.com>
* The NA EHS Committee agreed to the Google calendar, as modified in the NA EHS TCC meeting, for all EH&S TF teleconferences.

1. **Next Meeting and Adjournment**
   1. The next meeting is scheduled for Thursday, July 13, 2023 in conjunction with SEMICON West, July 11-13, San Francisco, CA. Refer to <http://www.semi.org/standards> for the current list of meeting schedules.

There being no further business, a motion was made to adjourn. Adjournment was at 3:37 PM.

Respectfully submitted by:

Kevin Nguyen,

SEMI Standards Operations Manager

Phone: 408-943-7997

Email: [knguyen@semi.org](mailto:knguyen@semi.org)

Minutes tentatively approved by:

|  |  |
| --- | --- |
| Sean Larsen (Lam Research) | <Date approved> |
| Chris Evanston (Salus Engineering International) | <Date approved> |
| Bert Planting (ASML) | <Date approved> |

| Index of Available Attachments#1 | | |
| --- | --- | --- |
| Title | Title |
| EHS NA TC Minutes 11102022r1.docx | SEMI S6 - Spring 2023- Summary3 |
| 6940A\_CompiledResponses\_tf07mar23b\_tf04apr23a | 2023 S23 US Spring TF mtg & rpt Crane r1 |
| 6940A A&R | FireProt\_Report\_es06apr23b |
| 6944A A&R | S1\_Report\_es06apr23a |
| 6831C\_CompiledResponses\_tf04apr23a\_es04apr23c | EnergeticMatls\_Report\_es06apr23a |
| 6831C A&R | SNARF\_LIs\_S30\_es06apr23c |
| 6941A\_CompiledResponses\_es28mar23c\_tf04apr23c | S2\_CoHE\_Report\_es06apr23a |
| S3 Report Spring 2023 | S12(decon)\_Report\_es06apr23a |
| S2 Mech Report Spring 2023 | SEMI-S8\_TF\_summary\_06APR2023 |
| 20230406 Environmental Performance Metric - TF Update | SNARF S22 5 April 2023 |
| S10\_Report\_es06apr23a | ICRC SEMI-Spring meeting meeting 2023 |
| Hydrogen addition SEMI-Spring 2023 | JA EHS TC Chapter Liaison Report\_Mar. 2023\_R0 |
| MESSC SEMI 2023 Spring notes | Korean Regulatory Survey Nov 4th SHARED Dec 20th+Discussion on results |
| TFOF SEMI S2 Major Revision 20230406 | Staff Report March 2023 v3 |
| S2 Interlocks Design SEMI 2023 Spring notes |  |

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 Kevin Nguyen at the contact information above.