

*Minutes*  
**PERM Meeting No. 1**  
**May 19-21, 2009**  
Hosted by AAI Corp.  
Hunt Valley, MD

## **1 Attendees:**

A list of the attendees is posted on the PERM Meeting pages of the AIA, Website.

## **2 Welcome and Introductions**

Lloyd Condra Transition Chair welcomed the attendees to the First Pb-Free Electronics Risk Management Consortium

Expressed appreciation to AAI Corporation for hosting the group.

## **3 AAI Corp: Textron Welcome**

Mike Bowden, Executive VP Engineering, AAI welcomed everyone to AAI.

## **4 PERM Briefing**

Ed Morris gave an overview of the work that had been done by the transition team. This presentation is available on the PERM meeting pages. Morris highlighted that the PERM represented both the expertise of the Subject Matter Experts participating in the Lead-free Electronics Project WG (LEAP-WG) sponsored by TechAmerica, AIA and AMC and those who are driving policy through the Executive Lead-free Integrated Process team (ELF-IPT). The briefing included discussions on the:

- **Charter:**
- **Scope/Expected Result:**
- **Tasks/Business Plan:**
- **Deliverables:**
- **2009 Actionable Deliverables:**
  - Start Date for PERM Council and Committees – 1Q CY09
  - Pb-free Electronics Risk Management Roadmap – 2Q CY09
  - Quarterly Progress Reports – As Required
  - Aerospace & Defense Pb-Free Electronics Risk Management (PERM) Council
- **Funding:**
  - Council members are to self-fund their participation
- **External Interfaces:**
- **Beneficiaries:**
- **Meetings And Procedures:**

## 5 Transition Discussion

Lloyd Condra presented; his presentation is available on the PERM Meeting pages. Condra described the success factor of the LEAP-WG, such as the cooperative spirit amongst all the stakeholders driving to a mutual goal.

Indicated the importance of maintaining the essence and enthusiasm of the LEAP-WG through this transition. It was the expectation that the spirit of cooperation would be maintained within the PERM structure.

## 6 Government Briefings and Panel Discussion

Gary Latta Moderated the government panel. The presentations from the panel have been posted on the PERM Meeting pages.

### 6.1 Lead Standardization Activity

Gary Latta: presented the Lead Standardization Activity

- NSWC Crane has been designated as the Lead
- Standardization Activity (LSA) for Soldering Technologies.
- LSAs are under the auspices of the Defense
- Standardization Program (DSP) and the Defense
- Standardization Program Office (DSPO).
- The policies and procedures of the DSP is covered by
- DOD 4120.24.
- A LSA is a management activity assigned a DoD-wide responsibility for ensuring the optimal degree of Standardization in a standardization area (soldering).

Estimated that OSD Policy would be signed out by the end of the year. At the time of the meeting the policy did not mention the GEIA handbooks and standards, but the latest version did reference the Lead-free Electronics Control Plan. Adoption of the standards would be worked through the Defense Standardization Program Office.

### 6.2 Navy Policy:

Bob Ernst, presented the Navy Policy. No presentation was provided. He stated the need for demand of a policy and checklist for the program manager is not enough. The decision makers are risk adverse. The corrosion issue was a good example where the problem was not addressed early and there was no system problems.

Ernst expressed the need to include the LFCP in program management reviews. Ernst suggests the need for industry to develop the best practices so the Navy could reference them in their guidance. Ernst also suggested that simply putting the references to the handbooks and standards in the DoD 5000.1 and 2 would have mixed results.

### **6.3 Air Force:**

Tim Kalt made a presentation on behalf of the Air Force. His presentation is available on the PERM meeting pages. Kalt noted the Air Force's Lead-free Airworthiness Advisory does mention the GEIA documents.

## **7 FAA Policy Update**

Gary Horan, FAA provided an update on FAA Policy:

Noted that there is a need for a national Policy for certified products. Current draft policy is in progress.

Currently the FAA is in the process of training Designated Engineering Representatives (DERs) and certification Engineers within the FAA.

Noted that recently the European equivalent to the FAA has become engaged with the FAA working the Issue.

FAA policy will go to the certification offices and they would be the one to comply with the policy.

## **8 EIA Track**

Farmer, Walsh

Provided a demonstration of EIA Track for monitoring global policy of restrictions of Hazardous substances.

## **9 Lead-Free Electronics Use and Repair Dynamic Simulation**

Peter Sandborn, CALCE reported on a repair simulation tool developed by CALCE.

### **9.1 Objective**

Create a model of the flow of fielded electronic systems to and through a repair facility for systems that were manufactured with tin-lead or lead-free solder (or a mixture of the two) and potentially have to be repaired with a mixture of tin-lead and lead-free parts.

During discussion it was suggested that the PERM could consider developing criteria for validating tools such as this.

## **10 Industry Briefings and Panel Discussion**

Dick Conrad moderated the industry panel: The following three speakers participated on the panel:

- Joel Heebink, Honeywell Aerospace, Coon Rapids, MN
- Bill Procarione PhD, Boeing IDS, St Louis, MO
- Lou Feinstein/ Textron, Wilmington, MA

Their presentations are available on the PERM Pages. Presentations provided descriptions industry's approach to managing the transition to Lead(Pb)-free components in areas such as:

- What have been your most significant hurdles?
- How do you manage the changes in your supply chain to Pb-free?
- How do you manage the risk to your designs?
- How do you manage your customer's expectations wrt Pb-free?
- Do you have an active Pb-free internal R&D effort?  
... or an active engagement with industry research groups?
- Do you see long range transition? when?
- Have you received any contractual requirements for compliance to the GEIA-Std-0005-1, -2 ?

## **11 CAVE research activities**

Predeep Lall presented the activity of the CAVE activity. His presentation is available on the PERM webpages.

## **12 Lead-free SBIRs**

Dr. Bob Esser presented DfR Solutions 2 SBIR to study Pb-Free reliability

- “Development of Complex Shock and Vibration Model and Reliability Prediction Tool for Pb-free Alloys”, and..
- “Shock and Vibe SBIR”: “Reliability Analysis and Prediction tool for Reballled BGAs in DoD Environments”, “Reballing SBIR”

## **13 Breakout Activities**

Vance Anderson and Ed Morris explained the process for the Break-out sessions.

Goals for the breakouts as follows:

- Initial face-to-face meetings for Task Teams and International Advisory Group
- Selected Chairs and Vice Chairs for ratification by the PERM Steering Committee
- Finalize 2009 Actionable Deliverables and Milestone Schedules
- Work on the Deliverables
- Prepare Status Brief for Thursday

### **13.1 Research Coordination Task Team**

Dr. Stephan Meschter, reported. A detailed presentation is available on the PERM web Pages Highlights of the discussion follow:

#### **13.1.1 Research Coordination Team Charter**

- Object/Goal
  - Define, develop, and execute a systematic, coordinated plan to provide the necessary research results to address all the critical needs of the

## Pb-free Electronics Risk Management Consortium

military/aerospace industry with regard to the global transition to lead-free electronics

- Scope/Expected Results
  - This is the top-level research coordination activity for the government and industry, aerospace and defense community with respect to lead-free electronics and will coordinate all research in this area
  - The coordination plan includes the development and maintenance of a research roadmap and funding plans (estimates for execution)
  - The focus of the research is to provide answers to key technical questions, as well as methods, processes, and consensus standards for use by the military/aerospace industry
  - The research may include development of alternate materials and processes
  - The research is not expected to provide a single solution set that is applicable to all applications; rather it will provide a set of solutions, with guidance to their applicability to given systems
  - The specific research projects on the roadmap may include projects in the proposed “Manhattan Project,” as well as other related research.
  - Serves as the Technology Review Board Group for the PERM

NOTE: Although the focus of the research is to provide “actionable deliverables,” it is recognized that some key technical questions exist for which the existing knowledge is insufficient for implementation on military/aerospace programs.

In such cases, it may be necessary to provide state-of-the-art knowledge which can be used provisionally, in lieu of “final results.” These “final results” will be the focus of future ongoing work, to be defined in this activity.

Interfacing/monitoring of the “Manhattan Project” is part of this Committee’s Oversight

### **13.1.2 Nominate Chairs and Vice Chairs**

Nominate Chair and Vice Chair for Steering Committee considerations

- Stephan Meschter (chair)
- Mick Miller (vice chair)
- Matt Hamand (Rockwell) secretary

### **13.1.3 Gaps**

- “What needs to be done” and “who is doing what”
- Recent publications
- Maintenance of Technical Pb-free documents
  - GEIA, IPC, etc.

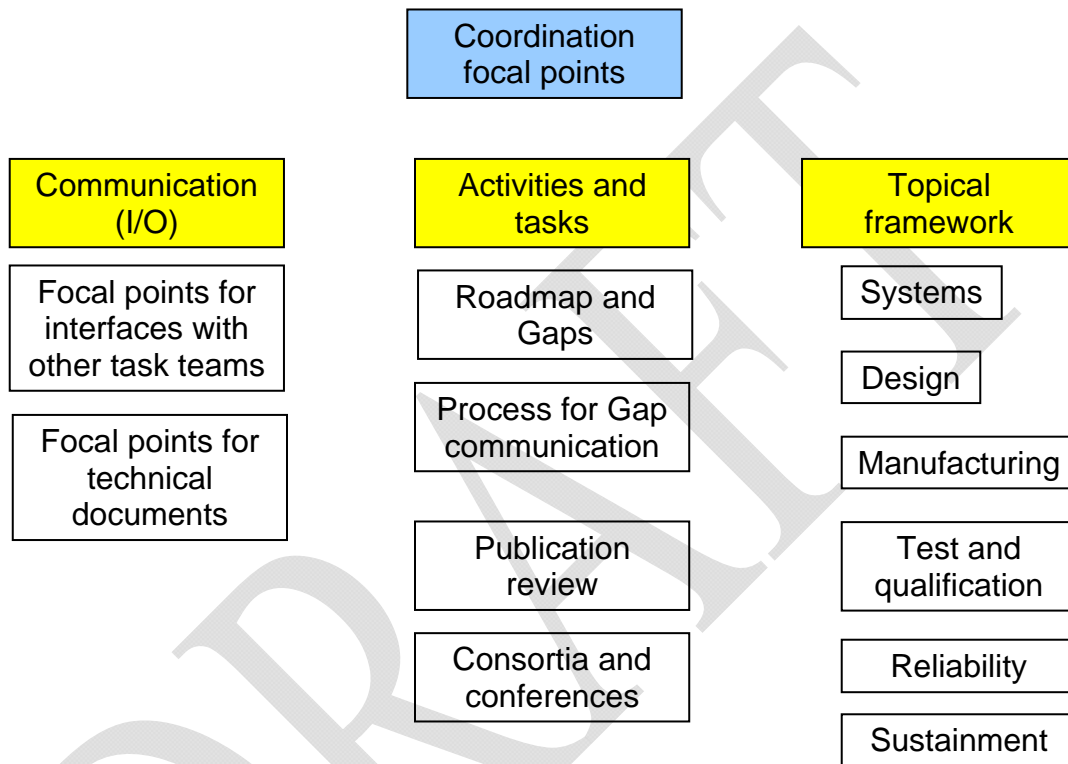
### **13.1.4 Actionable Deliverables**

- Near term

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- Update 2007 Gap analysis
  - Success story - SIBRs started
  - Process to communicate gaps to stakeholders and funding agencies
  - Periodic “Pb-free” gap newsletter

### 13.1.5 Structure of the team

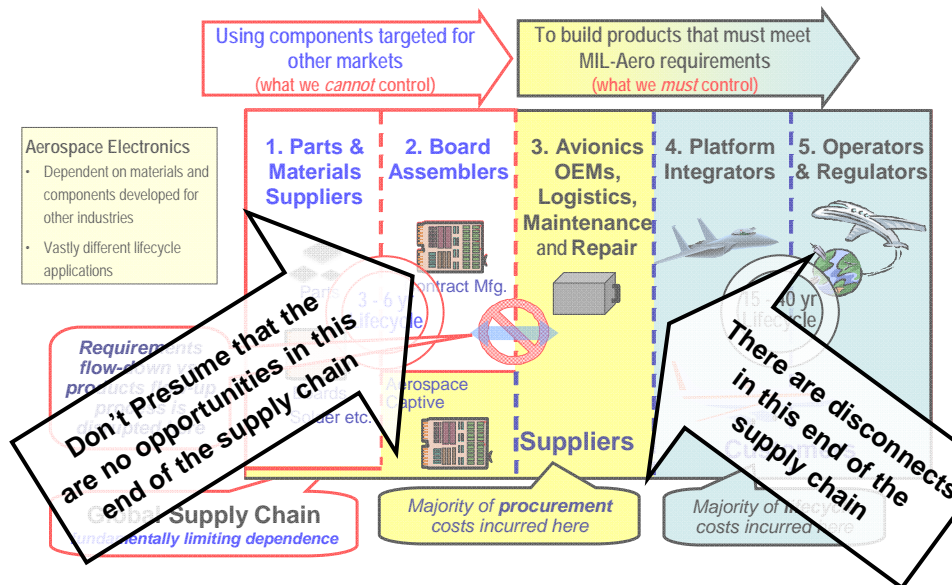


### **13.2 Supply Chain Risk Mgmt. Task Team**

Bill Procarione reported.

## The Global Electronics Supply Chain

*Doing nothing maximizes the risk*



### 13.2.1 Charter

- Objective/Goal
  - Actionable recommendations that can achieve more commonality in requirements and processes at the Electronics OEM level
  - A reduced probability of unknowingly accepting non-compliant electronic components and subassemblies
- Scope/Expected Results
  - Action recommendations for optimizing the cost / reliability risk trade across the product and requirement boundaries along the supply chain
  - Evaluation of and recommendations for action approaches that will convey and promote the needs of high reliability, long service life users to the materials and components end of the electronics supply chain

### 13.2.2 Chair and Vice-Chair

Chairperson: Bill Procarione

Deputy Chairperson: Mark Stibitz

### 13.3 Standards & Handbooks Task Team

Gary Latta Reported:

#### 13.3.1 CHARTER

The Standards & Handbooks Task Team will ensure that the Aerospace and Defense community has a body of knowledge in the form of standards, handbooks, technical manuals, and

other technical and administrative documentation from which to make informed decisions with respect to Pb-free electronics in order to control, limit, and/or manage the risks inherent with Pb-free electronics and the other unintended consequences of the global commercial transition to Pb-free electronics.

- Scope/Expected Results
  - Manage and/or participate in development of national and international standards for Pb-free electronics.
  - Facilitate coordination of draft documents in cooperation with standards bodies to ensure both government and private sector requirements are met.

### **13.3.2 Actionable Deliverables**

1. A catalog of Pb-free Standards and Handbooks (have, needs updated, want) - 2Q CY09
2. A potential Standards Body for each - 3Q CY09
3. Determine which should be submitted to IEC - 3Q CY09
4. A plan for updating existing documents - 3Q CY09
5. A plan for developing any new documents, if needed - 3Q CY09

### **13.3.3 Catalog of Pb-Free Standards & Handbooks**

- GEIA-STD-0005-1
- GEIA-STD-0005-2
- GEIA-STD-0005-3
- GEIA-HB-0005-1
- GEIA-HB-0005-2
- GEIA-HB-0005-3
- GEIA-HB-0005-4
- GEIA-STD-0006
- IPC-A-610
- IPC-7711/7721
- J-STD-001
- J-STD-609
- NAVAIR 01-1A-23

### **13.3.4 Team Structure:**

Document teams will remain status quo  
Chair is Gary Latta / co-chair is Dan Foster

### **13.4 Advocacy Task Team**

Dave Burdick reported.



#### **13.4.1 Charter:**

- The objective of the Advocacy Task Team is to track US and international legislation and respond with the consensus voice of the US aerospace and defense industry interests
- The team will develop relationships with ally organizations such as AIA, Tech America, GAMA, and others
- The team will be a pro-active voice and provide recommendations to legislative groups
- Scope/Expected Results
  - Monitor, evaluate, and report on United States and international legislation regarding lead-free electronics.
  - Present a unified U.S. military and aerospace position to appropriate legislative groups
  - The result of this effort is to promote the passage of positive legislation regarding the use of Pb-free electronics and block adverse legislation that would increase the risks to the aerospace and defense industry and its customers.
  - The result of this effort will reduce risk and maintain the cost effectiveness, reliability, safety, supportability, and performance of military and aerospace electronics systems.

#### **13.4.2 Tasks/Business Plan:**

##### **Sponsorship:**

•Oversight by the Aerospace & Defense Pb-Free Electronics Risk Management (PERM) Council reporting to the AIA EMC

##### **Leadership:**

•David Burdick	Chairperson
•Bill Procarione	Vice Chairperson
•Ed Morris	Team Member
•Gary Latta	Team Member
•Tom Eden	Team Member
•Stephan Meschter	Team Member
•Rusty Rentsch	Team Member

##### **Additional Membership Goal:**

•Representatives government (2), Tech America (1)

#### **13.4.3 Tasks/Business Plan:**

- Advocacy Monitoring, Evaluation and Response:
  - Quarterly reports (State of the industry, technical alerts, etc.)
  - Periodic position papers
  - Periodic advocacy actions (what are we doing)

#### **13.4.4 2009 Actionable Deliverables:**

- Evaluate the potential consequences of HR2420 (31 July).
- Build a network of consultants from the other six PERM Task Teams (30 June)

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- Bag & Tag current pending legislation. (30 to 90 Days)
- Grow the Advocacy Task Team network to include organizations that can help us accomplish our goals (90 to 120 days)
- Define the working relationship between the Advocacy Task Team, the Communication Task Team and the International Advisory Group. (45 Days)

### **14 Communications Task Team**

Vance Anderson reported.

#### **Communications Task Team Charter**

- Roles and strategy
  - 2009 PERM Communications Task Team Deliverables
  - Technical Papers/Position papers/State of the industry papers
  - Task Team Chairman and Co-Chairman nomination

#### **14.1.1 Communications Task Team Overview**

Sharepoint site for Task Team Members

#### **PERM Website**

- Public site (introductory material)
- AIA PERM Website
  - Develop as a resource (not just a meeting planner)
  - Many enhancements being considered

#### **PERM Whitepaper**

- Will be sent to PERM membership in the next few weeks
- PERM Communication Strategy
- PERM Liaisons

Communications Task Team

#### **General Comments**

- Not enough time for TT business in the 90 minutes that was allotted
- Where does implementation fit into the PERM framework?
  - This issues needs to be raised to the PERM Steering Committee
- There was a short discussion on how to retain the LEAP and ELF IPT products and deliverables. For instance – who now owns the ELF IPT Gap Analysis? Will it be maintained or updated? By who?

#### **14.1.2 Chair and Vice-Chair**

Chairman – Joe Zacari, Corfin Industries

Vice-Chairman – Jim Carrington, Premier Semiconductor Services

Communications Task Team

### **14.1.3 2009 Actionable Deliverables:**

1. Establish PERM email communications network – 2Q CY09
2. Establish PERM website – 3Q CY09
3. Develop and Distribute PERM Whitepaper to users – 3Q CY09
4. Develop PERM communications strategy 4QCY09

### **14.1.4 2010 Actionable Deliverables:**

1. Maintain PERM communications network – as required
2. Implement PERM communications strategy 2QCY10
3. Distribute PERM products to users – as released

### **14.1.5 PERM Logo Contest**

Send in a logo design to Rusty

Entries must be submitted by Sept 1, 2009

The PERM logo will be selected by the Steering Committee before the next PERM meeting

## **15 Training Task Team**

Tim Kalt, Reported

- 18 Participants yesterday
- 11 New Participants
- “Are we trainable?”
  - Demonstration
  - Definition of Training
  - Good Training vs. Bad Training

### **15.1.1 5-Objectives**

1. Initial meeting – Completed 20 May 09
2. Select Chair & Vice Chair – Completed 20 May 09
  - Chair: Tim Kalt
  - Vice Chair: Rick Gramlin
  - Scribe: TBD
3. Deliverables & Schedule/Milestone List – Completed 20 May 09
  - a. D1 – Proposed Changes to Charter 2QCY09
  - b. D2 – Logo 2QCY09
  - c. D3 – Training Needs Analysis (TNA) 4QCY09
  - d. D4 – Training Survey 1QCY10
  - e. D5 – Awareness (Elevator Slide) 2QCY09
  - f. D6 – Awareness (Overview) STWG Understanding Pb-free 2QCY09
4. Work on deliverables – Completed 20 May 09
5. Report back to PERM – Completed 21 May 09

### **15.1.2 Charter:**

Develop lead-free electronics risk awareness training for acquisition and technical organizations involved with Defense, Aerospace and High Performance systems. Identify existing resources to mitigate those risks. Provide source materials to assist in development of training.

### **15.1.3 Path Forward**

- Future Telecons on Wednesdays at 1:00 PM
- Next Telecon on 10 June
- Training Survey
- Charter Scope Review
- 2 Telecons/ Month
- Interface with ALL other Task Teams
- Next Face to Face meeting w/ next PERM Consortium Mtg

## **16 International Advisory Group**

Bob Gregory Rolls-Royce presented

### **16.1.1 Objective/Goal**

Establish and convene an International Advisory Group to define and agree on clear and realistic goals in concert with the PERM Steering Committee that will assure ongoing international cooperation on technical, implementation and verification issues related to lead-free transition

### **16.1.2 Scope/Expected Result**

- This group should include members from interested countries and organizations who are working to manage the common risks faced by the aerospace industry
- It will cultivate support and help facilitate the following and similar cooperative activities
  - Release of IEC standards and handbooks that manage and reduce the risks of lead-free changes
  - Identification and documentation of gaps
  - Determination of common goals and concerns
- They should also track and assess related and emergent regulations and activities world- wide that impact or may impact aerospace stakeholders during the lead-free transition
- Note: The international rules, limits and regulations regarding cooperation must be followed by the committee as governed and agreed to by the organization from which they come

### **16.1.3 Members:**

Robert W Vanderwiel, Lockheed Martin, US  
David V Burdick, Boeing, US  
Bob Gregory, Rolls-Royce, UK  
Frédéric RELMY-MADINSKA, Airbus, France

Lloyd w. Condra, Boeing, US  
Michelle O'Neill, Honeywell, Brussels (Belgium)  
Gary Horan, FAA, US  
Chas McCallum, Lockheed, US  
Dave Humphrey, Honeywell, US  
Tim Kalt, USAF, US  
Tom Eden, Gables Engineering, US  
Ed Morris, Lockheed Martin, US  
\* Taly Walsh, TIA  
\* Paul Hagen, Beveridge & Diamond (Attorney)

#### **16.1.4 Status**

- Planning telecons started.....
- Chair and Vice Chair Elected.
- Partner with EIA track planning stage.
- Growing contact list.

#### **16.1.5 Actionable Deliverable:**

- Formalize an initial contact network extended from the initial brain- storm and comprised of targeted individuals from within those organizations identified.
- This will be re-visited and expanded on an on-going basis.
- Due December 18, 2009

### **17 Manhattan Project Phase 1 Report**

Ed Morris, Lockheed Martin Corporation reported. His presentation is available on the PERM Web pages.

- Who:
  - The nationally recognized 16 deep subject matter experts assembled to work as a single, fully-funded team
  - Strong team leader with requisite management and technical skills
  - Government Funding Champion at highest possible level
- What: “Find acceptable replacements for Pb in electronics for use in aerospace and defense environments” (Dual Use)
- When: Begin ASAP with a 3-year commitment and hope for shorter
- Where: National Lab or Center such as the EMPF as the “Research Center” with access to other facilities as needed
- How: \$60M Dedicated “Pocket change funding” compared to the scope of the problem (\$20M/year = 16 SMEs + \$14M Research \$)
- Why: Given time, the “Business Case” will become self-evident based on events, even to the most strident “nay sayers”

### **18 PERM Feedback and Future Activities**

Feedback was collected and would be reviewed for improving future meetings.

**19 Next Meeting:**

September 9, 10 and 11

Naval Surface Warfare Center, Crane, Indiana.

DRAFT