

*The 41<sup>st</sup> and FINAL Battery Technology and Usage Workshop*  
*May 24 — 26, 2016*

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**EaglePicher Technologies/Yardney Division** proudly presents the 41<sup>st</sup> and Final Battery Technology and Usage Workshop. A three-day comprehensive workshop focusing on:

- Operation & Performance
- Usage/Maintenance
- Safety
- Battery System Design
- Applications

**Workshop Location:** EaglePicher Technologies, Yardney Division  
2000 South County Trail, East Greenwich, RI 02818-1530.

**Workshop Schedule:**

May 24, 2016 — 8:15 AM to 4:30 PM

May 25, 2016 — 8:15 AM to 4:30 PM

May 26, 2016 — 8:15 AM to 1:00 PM

**Registration and Fees:     \$795.00 (Space is limited)**

*Fee includes all required Workshop materials, notebooks, daily luncheons and coffee, one orientation evening.*

Call to register:     Lois Kisch 401-471-6580, ext. 311 or  
                              Darren Whelan 401-471-6580 ext. 321

**Payment: (Must be received prior to the start of Class)**

Checks payable to:   EaglePicher Technologies, LLC  
                              PO Box 640666, Pittsburgh, PA 15264-0666

Credit Cards: VISA, MasterCard, American Express. See attached credit card transaction form.

**There are no refunds for credit card payments but attendee substitutions will be accepted.**

**Accommodations:** (not included in fee). A limited block of rooms at the special rate of \$89/night have been reserved at the **Hampton Inn**, 850 Center of New England Blvd. Coventry, RI (401) 823-4041

Request the **EaglePicher/Yardney Battery Workshop** rate when calling to book your room. This rate is not available with on-line bookings. *EaglePicher is not responsible for any hotel cancellation charges, penalties, or billing discrepancies.*

Note: The nearest full service airport is T.F. Green in Warwick/Providence, RI (PVD) (15 minute drive on Interstate 95).

**Who Should Attend:** This 3-day workshop is designed for engineers, scientists, technicians or others involved in the selection, activation, handling, testing, maintenance and installation of high energy-density batteries.

**Course Description:** Batteries are probably the least understood critical component in any power system. The knowledge and experience gained during this workshop will enhance the end users' overall perception of batteries.

The purpose of this workshop is to familiarize the attendee with the unique attributes of Silver-Zinc, Lithium-ion and Metal-Air Batteries. The training received from this workshop will provide the user with invaluable information on different battery capabilities and thus avoiding costly battery usage and selection mistakes.

The workshop is an intensive 3-day format and emphasizes a "hands-on experience". The course includes a survey of electrochemical couples, operation and performance characteristics, design considerations, maintenance and usage and environmental and safety related issues. Both primary and secondary systems will be discussed. The emphasis of the workshop will be on the practical, rather than theoretical aspects of battery technology.

Each participant will build his/her own Silver-Zinc or Lithium-ion battery cell, activate it and discharge it in the laboratory. **Please select choice of cell during registration.**

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EaglePicher Technologies, LLC, Yardney Division

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Tel: 401-471.6580 — Fax: 401.471.6599 —email: [lois.kisch@eaglepicher.com](mailto:lois.kisch@eaglepicher.com) or [darren.whelan@eaglepicher.com](mailto:darren.whelan@eaglepicher.com)

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**About Yardney:** Yardney has been a leader in Silver-Zinc battery technology since 1944, when Michel Yardney and Professor André first developed a working rechargeable battery and has been involved on almost every major program where high energy-density batteries are required.

With the acquisition of Whittaker's Primary Battery Power Sources Division, the expansion of Lithium-ion Battery technology and the acquisition of Alupower, Yardney continued to grow and diversify in all facets of battery technology, becoming a world-leader in advanced battery technology. EaglePicher Technologies, LLC acquired Yardney in 2014.

**Past Workshop attendees** include: Aerospace Corp., Anton-Bauer, AUTECH, Boeing, Bristol Aerospace, Coleman Research Co., Fairchild Space Co., General Dynamics, Hamilton Sundstrand, ISE, JPL, Kelly AFB, Lockheed Martin, ULA, NASA, Naval Electronics Systems Command, Naval Research Lab, NAVSEA, NCSC, New Mexico State University, NFSEC, Northrop Grumman, NSBF, NSWC, NUWC, Orbital, Patrick AFB, Raytheon, Redstone Arsenal, SDV Teams, TRW, U.S. Air Force, U.S. Navy, Western Instruments, Wright Patterson AFB, and many leading Universities.

#### **Workshop Topics**

- History of Batteries
- Basic Electrochemistry
- Design Parameters
- Separator Overview
- Battery System Design
- Factors Affecting Cell Performance
- Comparison of Electrochemical Couples
- Safety Mechanisms
- Usage

- Activation
- Charging/Discharging
- Cell Reversal
- Monitoring Equipment
- Failure Modes
- Response/Troubleshooting
- Case Studies
- Maintenance
- Storage Requirements
  - Temperature Affects
- Optimizing Performance
- Applications
- Safety/Environmental Issues
- Electrolyte/Handling of Electrolyte
- Handling of Activated Cells/Batteries
- Fabrication Process
- Build, Activate and Test Your Own Cell



#### **Instructors:**

Susan Russell, Silver Technology (Secondary)  
Jim Dick, Silver Technology (Primary)  
Frank Puglia, Li-ion R&D  
Dr. Rob Gitzendanner, Li-ion Technology  
Dr. Arthur Doble, Metal-Air Technology  
Staff, Test Engineering  
Mark Peterson, Environmental/Compliance/Packaging/Transportation  
Darren Whelan, Business Development  
Alex Buonanno, Li-ion Safety  
Stu Santee, Li-ion Design & Performance  
Staff, Battery Management System

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