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Bartlett Bay Consulting^{LLC}

**Contamination Control
And
Minienvironment Specialists**

December, 2004

The Newsletter for the Contamination Control Community



*Bartlett Bay Consulting wishes you a very happy and healthy new year
and a contamination-free cleanroom
(who could ask for more?)*

A **milestone** has been reached with this issue of Bartlett Bay Consulting Contamination Control News: it is now sent to over **1000 semiconductor and pharmaceutical professionals** all over the world.

It has always been the intention of this newsletter to provide valuable and timely information to the contamination control community, and, with the growing success of this newsletter comes that opportunity. To that end, Bartlett Bay Consulting has instituted 2 new features:

1. **bbcForum™: Get Credit for your work!** If you would like to contribute a short article or feature that would be of interest to our readership, [contact me](#)

See below for the first contributor to this new series.

2. **bbcLink™: Promote your company!** if your company would like to be promoted as a link on the Bartlett Bay Consulting web site, click [here](#) and fill out the form on that page.

We hope that you find these newsletters interesting & informative reading. Please feel free to contact me with any questions or comments. Past issues are available on the [Bartlett Bay Consulting](#) web site.

If there are colleagues who would be interested in receiving these newsletters, please [contact me](#).

If you wish to "un-subscribe" from future mailings, please use my email link and type "UN-SUBSCRIBE" in the subject line, and your name will be removed from future mailings.

**Steve Silverman, President
Bartlett Bay Consulting**

The newsletter feature articles will return in February 2005 with a new series on ISO 1 certification

This issue will give important information relating to contamination control

*bbcForum's Premier Article, "A Tale of Two Fabs"

*Upcoming conferences trade shows, symposiums

and

*recent magazine articles of interest

bbcForum Premier Article

by Steven Kochevar,

Electrical Engineer, Aerosol/Vacuum/Gas Applications Specialist, NEBB Associate

A Tale of Two Fabs

Not long after the introduction of minienvironments for 300mm-semiconductor processes, minienvironment manufacturers promised ISO Class 1 or 2 enclosures that isolate the product from the main source of cleanroom particulates: people! Consequently, some semiconductor manufacturers believed these claims and relaxed their cleanroom gowning standards; others were a little more skeptical.

Having conducted numerous airborne particle tests within different 300mm fabs, data shows that relaxing cleanroom gowning standards will affect wafer yields. Conversely, the semiconductor fabs that still employ ISO Class 4 or 5 (Fed. Std 209E Class 10 or 100) gowning procedures, can maintain higher wafer yields.

No one is likely to argue against the value of minienvironments, but comprehensive data has shown that product wafers suffer significant die kills when cleanroom gowning procedures are relaxed. Although minienvironments can maintain ISO Class 1 or Class 2 requirements, there are moments when the environments allow particle ingress. These moments include preventative maintenance (PMs), failures in fan-filter units (FFUs), improperly balanced dampers within the minienvironments, or particle transfer from contaminated Front Opening Unified Pods (FOUPs). If the cleanroom adopts more lenient ISO Class 6 (Fed. Std. 209E Class 1000), these particles will find their way into the minienvironments.

Furthermore, when promised the virtues of minienvironments, 300mm-semiconductor manufacturers should not be so eager to lower cleanroom gowning protocols. Minienvironments certainly improve processes and yields, but the cleanroom's primary source of contamination is still cleanroom personnel. If fab personnel adopt less stringent gowning protocols, the sources and concentrations of contamination increase in the fab, and since current manufacturing technologies preclude removing personnel from the fab, the contamination that personnel bring into the fab must be removed. Following strict cleanroom gowning techniques and policies will help maintain high wafer yields and improve our industry.

Upcoming Conferences:

Feb 14, 2005: [SPWCC](#) (Silicon Pure Water and Chemicals Conference)
Symposium: Back Surface and Edge Contamination:
An Industry Perspective.

Santa Clara Convention Center, Santa Clara CA

Note: Steve Silverman, President of Bartlett Bay Consulting will give the keynote presentation:

“Back Surface Particles: Overview of Industry Requirements”

(Also See attached PDF file for other conference information)

March 22-23, 2005: The [Cleanrooms](#) Contamination Control Technical Conference and Exhibition, The World Trade Center, Boston, MA.

Feb 16-17: [3C](#): Contamination Control and Cleanroom Products Conference, Birmingham, England

April 26-28, 2005: [Interphex](#) 2005 (Pharmaceutical Conference) Jacob K. Javits Convention Center
New York, NY

May 1-4 2005: [ESTECH](#) ([IEST](#) Spring conference); Hyatt Regency Woodfield, Illinois (near Chicago's O'Hare Airport)

Note: Steve Silverman, President of Bartlett Bay Consulting will be giving a tutorial on back surface particles.

Interesting Articles

Filtration Monitoring Lags Behind Advances in HVAC Technology, Ken Bloom, [A2C2 Magazine](#), November 2004.

The Need for Lighting Performance Standards [in cleanrooms], George Ryder, [Cleanrooms Magazine](#), November 2004

Automation Takes Aim at Contamination, John Williamson, [Cleanrooms Magazine](#), October 2004

Bartlett Bay Consulting WEBINARS

Webinars are online PowerPoint presentations delivered via [WebEx©](#), providers of web-based conferencing & presentation technologies. The Webinars are very in-expensive training method, as no travel is involved and a company's participants can all be in an internet-ready conference room or at their work station. Video is delivered to your monitor directly, and Audio is delivered through VO/IP or standard POTS line (telephone). Additionally, "instant messaging" is active, keeping each member of the audience in direct communication with the Moderator throughout the presentation. Essentially, it is the same as any moderated presentation, only we are not all in the same room! Communication is limited to Moderator/Audience Member. The links are secure, and there is no connection between each member of the audience.

Webinar Deliverables

- 1.5 Hours Presentation of Material
- Q & A Session at the end of Presentation [Questions asked during the presentation by the participants will be answered either immediately (Instant Messaging) or via email within 3 days of the presentation]
- Access to the PowerPoint presentation material via a password after presentation Click [Here](#) if you would like more information

<u>.Future Webinar Topics (dates TBA)</u>	
TOPIC 1:	Contamination Control: Beyond the Basics: Intermediate course
TOPIC 2:	PWP (frontside) Measurements: Advanced course
TOPIC 3:	Backside Measurements: Advanced course
TOPIC 4:	Minienvironment design: Intermediate course
TOPIC 5:	Cleanroom and Minienvironment Certification Method: Intermediate course
INSTRUCTOR:	Steve Silverman, President, Bartlett Bay Consulting (Resume)
AUDIENCE:	Anyone who is involved with cleanroom and minienvironment contamination control.

Bartlett Bay Consulting Clients

ADE	Philips Advanced Metrology Systems
Aixtron	Rudolph Technologies
Brooks Automation	Thermo-Electron
IBIS	Varian Semiconductor Equipment Associates

Notes of Interest

Steve Silverman, President of Bartlett Bay Consulting continues to lead the ITRS Surface Preparation Focus Team on Backside Particles. This committee is charged with updating the "Backside Particle" section of the 2004 ITRS Roadmap. *[If you are interested in being a participant in this committee, please contact [Steve](#)*

Travel Schedule

Listed below is our travel schedule for the near future. If you would like to confirm a date for us to stop by while in your area, please call and we'll make sure to include a visit to discuss how our services can help your firm. In addition, we would be glad to schedule a special presentation to your staff or other user group interested in learning more about Bartlett Bay Consulting & Contamination Control. Steve Silverman, President of BBC has the following schedule. [contact](#) him if you wish to arrange an appointment on one of the following dates.

Metropolitan Boston: *the weeks of Jan 3rd and 10th*

San Francisco/Bay area: *the week of Feb 14th*



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