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PDA Letter

April 2003

A Monthly Communication for the Members of PDA—
An International Association for Pharmaceutical Science and Technology

FDA 2003 Budget Includes $5.3 Million for Expansion of Generic Drug Program, page 6

FDA Completes First Steps to Improve Regulation of Pharmaceutical Manufacturing

The Food and Drug Administration (FDA) announced on February 20 that it has accomplished the initial objectives set in its ongoing initiative to modernize the agency's regulation of pharmaceutical manufacturing and product quality.

This initiative is part of Health and Human Services (HHS) Secretary Tommy G. Thompson's broader efforts to improve and streamline the regulatory process in order to improve Americans' access to quality health care and services. Two years ago, Secretary Thompson created an HHS-wide initiative on regulatory reform to conduct an ongoing review of HHS regulations and to oversee changes in regulations, and he appointed an expert advisory panel that made hundreds of specific recommendations. These actions reflect the Secretary's goal of smart regulation.

"Using state-of-the-art approaches in FDA's many critical review and inspection activities will encourage innovation and continuous improvement in drug manufacturing to minimize production problems, and that will make it easier to get safe, high quality medications to patients who need them," said Mark B. McClellan, M.D., Ph.D., Commissioner, FDA. "These initiatives are part of the Department of Health and Human Services' overall efforts to improve the quality, safety, and cost of medical products. We will focus our attention and resources on the areas of greatest risk, with the goal of encouraging innovation that maximizes public health protection and promotion."

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PDA Course for Italian Inspectorate

Rome in February...and April...and June...

by Dr. Carmen M. Wagner,
Strategic Compliance International, Inc.

The PDA team responsible for the course on *Regulatory Compliance for the Italian Inspectorate* was hard at work at the end of January, as they prepared for the delivery of Module One on *Good Manufacturing Practices: An Introductory Survey of Current Expectations and Issues*. Module One was presented February 3–5, 2003, and is the first in a series of six modules which will run for most of 2003, covering topics of interest to the Italian Inspectorate.

The real factor in the success of Module One was the enthusiastic and professional participation from the inspectors and their managers. For the full three days the discussion was lively and spirited. Thirty-five inspectors, both from the Ministry of Health and

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May 5–9, 2003

2003 PDA International Congress, Courses and Tabletop Exhibits

PDA will add value to the pharmaceutical manufacturing industry in Singapore by delivering a cutting-edge conference which will include the highly acclaimed training workshop on the ICH Q7A Guidance.

The Ritz Carlton Millenia Singapore
Congress: May 7–9
Courses: May 5–7
Tabletop Exhibits: May 7–8

Don't miss your chance to interact with key health authority expert presenters, including:

- David Cockburn, European Medicines and Evaluation Agency, UK;
- Alan Duff, Therapeutic Goods Administration, Australia;
- Susanne Keitel, BfArM, Germany;
- Gordon Munro, Medicines and Healthcare Products Regulatory Agency (MHRA), UK; and

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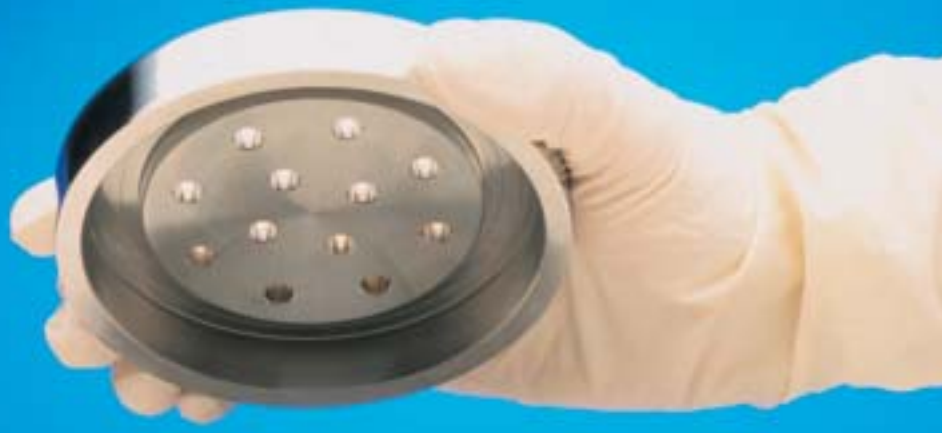

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PDA Letter

Important Dates...

- **May 14—deadline for 2004 PDA International Congress, Basel, Call for Papers**
- **May 31—last day for members to receive discounts on PDA Technical Reports, see page 12**

IN THIS ISSUE...

Executive Message

Neal Koller
PDA President

Neal G. Koller, President

After 60+ days on board, I am more excited than ever about joining PDA and its prospects for the future. I thank all of you for your warm welcome. Your good wishes and thoughtful messages are very much appreciated.

My first official PDA event was the PDA Prague Congress in February. This was an impressive event on several levels. First, those in attendance heard milestone presentations from both the FDA and EMEA. Dr. Yuan-yuan Chiu, Director, Office of New Drug Chemistry, CDER, FDA, delivered the first public presentation of the new FDA GMP Initiatives. Plus, Ms. Emer Cooke, Head of Inspections, EMEA, revealed the latest EMEA inspections sector mandates and tasks. All presentations from the Prague Congress are now posted in the Members Only section of www.pda.org for your reference.

Those attending the Prague Congress heard the first public presentation of the new FDA GMP initiatives and the latest EMEA inspections mandates.

Next, this was my first time to see the staff in action at a PDA meeting. I was greatly impressed with the organization and ease with which the Congress was managed. The PDA Board of Directors impressed upon me that I was inheriting a strong, professional staff. Working with them over these past few months, both at headquarters and at events, has proven the point.

To build on the existing PDA strengths and accomplish the goals with which I have been tasked, we have embarked on a new approach to serve our membership and a new structure to lead the way.

I am pleased to announce that Lance K. Hoboy has joined PDA as Vice President of Finance & Strategic Planning. Lance is a versatile, customer-oriented senior executive, with more than 25 years of hands-on experience in business development, finance and strategic planning. He provides a proven track record of establishing management systems to improve productivity, reduce costs, stimulate growth, and ensure customer satisfaction.

Most recently, he served as the Executive Vice President, CFO and a Board member for Dovetail Technologies, Inc., College Park, MD. Prior to Dovetail, he held numerous senior-level positions at Tecnal, Inc., including President, CFO and Director of Marketing & Operations. His other affiliations included Executive Vice President and Interim CFO at LifeTime Pharmaceuticals, Board member for Spurlock Industries, Inc., Director of Operations at Schwan's Food International, Managing Director at Schwan's Food Asia and Assistant to the Chief of EDP Budgeting for the US Environmental Protection Agency.

Lance earned his B.S. in Mechanical Engineering from Stanford University and his M.B.A., specializing in Finance and Operations, from Cornell University.

Further, we have created a Sales Department which will report directly to the President. Nahid Kiani, a longtime PDA employee, has been promoted to Senior Sales Manager to lead this new department. She will continue to be responsible for sales of advertising, exhibits and sponsorships, and will assume responsibility for publications and online sales. Reporting to Nahid will be Marcus Brown and Janny Chua.

Many of you know Nahid well. She joined PDA in 1993 and has worked in nearly every department on staff including Accounting, Membership, Meetings and Marketing. Her contributions to PDA, her professionalism and talent make her very deserving of this promotion.

Nahid holds a B.S. in Electrical Engineering from Gannon University.

Coming in 2004—PDA WEEK...

…five jam-packed days of multi-track programming, PDA-TRI courses and an expanded Exhibit. By marrying the resources traditionally invested in producing the PDA Annual Meeting and PDA Spring Conference, we can deliver a broader spectrum, content enriched opportunity for you.

PDA WEEK will be co-located with the CleanRooms East show, March 8–12, at the Orlando County Convention Center, Orlando, Florida. Partnering with CleanRooms enables us to utilize state-of-the-art meeting facilities and the power of a combined exhibit.

Mark your calendars for PDA WEEK, March 8–12, 2004. ■

U.S. Regulatory Briefs

FDA Publishes Final Rule to Require Labeling About Antibiotic Resistance On February 5, 2003, the Food and Drug Administration (FDA) announced that a final rule outlining new labeling regulations designed to help reduce the development of drug-resistant bacterial strains is on display at the *Federal Register*. This final rule is aimed at reducing the inappropriate prescription of antibiotics to children and adults for common ailments such as ear infections and chronic coughs.

The new rule applies to all systemically absorbed human antibacterial drugs and requires statements in several places within the physician labeling advising that these drugs should be used only to treat infections that are believed to be caused by bacteria. The rule also requires a statement within the labeling encouraging physicians to counsel their patients about the proper use of these drugs and the importance of taking them exactly as directed. This is part of ongoing efforts at FDA to encourage the development of new antimicrobials while preserving the usefulness of already existing ones.

An electronic version of this final rule can be found at: http://www.fda.gov/OHRMS/DOCKETS/98fr/00n-1463-nfr00001.pdf. More information about antibiotic resistance can also be found on FDA's Web site at: www.fda.gov/oc/opacom/hottopics/anti_resist.html.

International Conference on Harmonisation; Revised Guidance on Q3A Impurities in New Drug Substances The FDA has announced the availability of a revised guidance entitled "Q3A(R) Impurities in New Drug Substances." The revised guidance, which updates a guidance on the same topic published in the *Federal Register* of January 4, 1996 (the 1996 guidance), was prepared under the auspices of the International Conference on Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use (ICH). The revised guidance not only clarifies the 1996 guidance, but also adds information and provides consistency with more recently published ICH guidances. The revised guidance is intended to provide guidance to applicants for drug marketing registration on the content and qualification of impurities in new drug substances produced by chemical syntheses and not previously registered in a country, region, or member state. This guidance is effective February 11, 2003.

For further information:

- Regarding the guidance: contact Charles P. Hoiberg, Center for Drug Evaluation and Research (HFD-800), Food and Drug Administration, 5600 Fishers Lane, Rockville, MD 20857, (301) 827-5918.
- Regarding the ICH: contact Janet Showalter, Office of International Programs (HFG-1), Food and Drug Administration, 5600 Fishers Lane, Rockville, MD 20857, (301) 827-0864.

The document itself can be found at www.fda.gov/ohrms/dockets.

ICH Meeting in Chiba, Japan: Summary of Activities The International Conference on Harmonisation (ICH) Steering Committee and its expert working groups met in Maihama, Chiba, Japan, from February 3–6, 2003. The implementation of the Common Technical Document (CTD), including the electronic CTD (eCTD), was the main focus of the discussions. This was particularly timely, since the official implementation date of the CTD is scheduled for July 1, 2003. (*From that date, submission in CTD format will be mandatory in EU and Japan, and highly recommended in the U.S.*). The CTD is the agreed-upon common format for submission in the three ICH regions.

Additional sets of CTD Questions & Answers (Q&As) were endorsed by the Steering Committee and will be posted on the ICH Web site. These Q&As relate to general matters as well as to the specific parts of the CTD, but most of them relate more particularly to the eCTD.

The Steering Committee supported the proposal from the eCTD Implementation Working Group (IWG) for a Change Control Process, defining the mechanism for controlling change requests to the eCTD specifications. The Steering Committee also supported the proposed approach for Study Reports specifications, and agreed that this proposal not only should be piloted, but that a report should be given at the next Steering Committee in July.

The Steering Committee adopted the final version (Step 4) of the guideline on "Postmarketing Surveillance Activities—Periodic Safety Update Report", which will be an addendum to the existing ICH E2C guideline ("Clinical Safety Data Management—PSUR").

Further progress was reported regarding the two other postmarketing surveillance (pharmacovigilance) topics, i.e.:

- The guideline on "Post-Approval Safety Data Management" (topic E2D);
- The guideline on "Pharmacovigilance Planning" (topic E2E).

The Steering Committee was informed about the significant progress with the development of the new Q5E guideline on "Comparability of Biotechnological and Biological Products."

The Steering Committee also adopted the final versions (Step 4) of two guidelines on Stability Testing Requirements:

- "Statistical Analysis and Data Evaluation" (topic Q1E);
- "Data Package for Registration in Climatic Zones III and IV" (topic Q1F).

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U.S. Regulatory Briefs from page 5

In addition, the Steering Committee adopted the final version (Step 4) of the guideline on "Major Revisions of the ICH Impurities Guidelines in New Products" [topic Q3B(R)].

Furthermore, the Steering Committee discussed and agreed upon the framework of the program for the ICH6 Conference, "New Horizons and Future Challenges," to be held in Osaka, Japan, from November 12–15, 2003. A second announcement will be posted soon on the ICH Web site, www.ich.org, in order to allow registrations to start in April.

For more information on ICH, visit www.ich.org.

FDA Announces Checklist for Abbreviated New Drug Applications The FDA has issued a checklist that generic firms can use to ensure that Abbreviated New Drug Applications (ANDAs) are complete and acceptable. The Office of Generic Drugs wants to give generic manufacturers a guide as to what the office expects in a generic drug application in order to reduce the large number of applications that are rejected in the initial round of the review process. This checklist can be found at: http://www.fda.gov/cder/ogd/anda_checklist.doc.

FDA Introduces Inactive Ingredients Database The Inactive Ingredients Database provides information on inactive ingredients present in FDA-approved drug products. This information can be used by industry as an aid in developing drug products. For new drug development purposes, once an inactive ingredient has appeared in an approved drug product for a particular route of administration, the inactive ingredient is not considered new and may require a less extensive review the next time it is included in a new drug product. For example, if a particular inactive ingredient has been approved in a certain dosage form at a certain potency, a sponsor could consider it safe for use in a similar manner for a similar type of product. The database can be found at: http://www.accessdata.fda.gov/scripts/cder/iig/index.cfm. ■

—William Stoedter

FDA 2003 Budget Includes $5.3 Million for Expansion of Generic Drug Program, Additional Reviewers, and Plant Inspectors

Statement of Mark B. McClellan, M.D., Ph.D., Commissioner, FDA, on Approval of the Omnibus Appropriation Bill

On February 19, 2003, the President signed the fiscal year (FY) 2003 Omnibus Appropriation Bill which provides the Food and Drug Administration (FDA) a program level budget of $1.64 billion, or a 21% increase over the original FY 2002 appropriation. The agency is gratified that the President and Congress, which approved the bill on February 13, 2003, gave the agency the necessary resources to continue providing the American public with the high level of safety and security it expects.

These resources will support FDA's responsibilities under the Federal Food, Drug, and Cosmetic Act to ensure that new products are safe and effective for consumers. This legislation allows for $271 million for user fees, including $223 million, or a $61 million increase, for Prescription Drug User Fees (under PDUFA, the Prescription Drug User Fee Act) and $25.1 million in newly appropriated user fees authorized by the Medical Device User Fee and Modernization Act (MDUFMA). The legislation also provides $5 million for improvement of patient protection against medical errors involving the use of FDA regulated drugs, biological products, and medical devices.

The budget also provides for a $5.3 million expansion of FDA's generic drugs program. By hiring additional product reviewers, plant inspectors, and more closely monitoring the quality of imported generic drugs and bulk drug substances, FDA will be able to provide consumers with access to safe and affordable medications.

The greatest increase, which comes from the incorporation of the FY 2002 counter-terrorism supplemental budget of over $150 million dollars into FDA's base budget, reflects the agency's central role in the Nation's defense against the threat of terrorism.

FDA's budget also includes the across-the-board reduction of 0.65% ($8.9 million), as well as cost savings of $2.6 million that will be achieved by the streamlining of operations, new management efficiencies, and the consolidation of administrative functions and facilities. ■

Regulation of Pharmaceutical Manufacturing from cover

The announcements are a significant interim step in a major agency-wide initiative on "Pharmaceutical Current Good Manufacturing Practices (cGMPs) for the 21st Century: A Risk Based Approach," a two-year program which applies to pharmaceuticals, including biological human drugs and veterinary drugs.

The initiative, announced in August 2002, was designed to evaluate and improve upon the agency's approach to reviews and inspections related to the manufacturing of human and animal drugs and biologics.

Highlights of what has been completed to date include:

- Clarifying the scope of FDA's electronic submission and record-keeping requirements and providing for enforcement discretion in certain areas while FDA considers whether to revise the Part 11 regulations to facilitate innovation for modern manufacturing, electronic record keeping, and regulatory submissions;
- Facilitating continuous improvement and innovation in manufacturing by allowing manufacturers to make certain types of changes in their processes without prior FDA approval;
- Launching a program to identify and address inconsistencies across program areas with respect to all drug cGMP warning letters;
- Issuing for public comment a progress report on improving dispute resolution procedures to facilitate early resolution of scientific and technical disputes and to allow for greater transparency;
- Clarifying the language used to communicate deficiencies observed during cGMP inspections to better describe the purpose and effect of the investigator's observations issued at the conclusion of an FDA inspection;
- Planning public workshops on the scientific foundations of the initiative that will help shape FDA's next steps in its implementation;
- Focusing FDA resources on inspections that are likely to achieve the greatest public health impact (e.g., sterile drug manufacturing);
- Providing a progress report that considers adding product and technical specialists with relevant expertise to inspection teams that do not yet include such specialists, a promising step for improving the technical quality and consistency of FDA's inspections; and
- Enhancing the agency's expertise in pharmaceutical technologies by hiring a number of additional experts and by collaborating actively with academic groups and other outside experts.

The "Pharmaceutical cGMPs for the 21st Century" initiative will include additional intermediate and long-term steps. The major goals of this initiative include:

- Ensuring that state-of-the-art pharmaceutical science is utilized in the regulatory review and inspection policies;
- Encouraging the adoption of new technological advances in high quality and efficient manufacturing by the pharmaceutical industry;
- Assessing the applicable cGMP requirements relative to the best quality management practices;
- Strengthening public health protection by implementing risk-based approaches that focus both industry and FDA attention on critical areas for improving product safety and quality; and
- Enhancing the consistency and coordination of FDA's drug quality oversight activities.

The initiative is being overseen by an agency steering committee with representatives from the Center for Biologics Evaluation and Research (CBER), the Center for Drug Evaluation and Research (CDER), the Center for Veterinary Medicine (CVM), the Office of Regulatory Affairs (ORA), and the Office of the Commissioner (OC). Janet Woodcock, M.D., Director of CDER, is the chairperson of the steering committee.

According to Dr. Woodcock, "FDA expects to complete and publish a comprehensive implementation plan for this cGMP initiative by mid-year. These initial accomplishments are the first steps toward achieving FDA's goals for a 21st-century regulatory system for pharmaceutical manufacturing designed to protect the public health and to ensure that safe and effective drugs are available to the American public."

Additional information on this initiative can be found online at www.fda.gov/cder/gmp/index.htm. ■

Pharmaceutical CGMPs for the 21st Century, Who's Who on the Working Groups

The following is a list of the Chairs and Co-Chairs of the various working groups evaluating the cGMPs under the FDA's recent cGMP initiative. Although all of the Chairs and Co-Chairs are from CDER, the working groups are composed of members from CBER, Center for Veterinary Medicine, Office of Compliance, Office of Regulatory Affairs and others.

Steering Committee: Janet Woodcock, M.D., Director, CDER, FDA

Contracts Management: Theresa Mullin, Ph.D., Associate Commissioner for Planning and Evaluation, CDER, FDA

Part 11: Joseph C. Famulare, Director, Division of Manufacturing and Product Quality, CDER, FDA

Warning Letter Review: Frederick W. Blumenschein, Supervisor, Case Management and Guidance Branch, Division of Manufacturing and Product Quality, CDER, FDA

Changes w/o Prior Review: Ajaz Hussain, Ph.D., Deputy Director, Office of Pharmaceutical Science, CDER, FDA, Co-Chair; Nancy B. Sager, Associate Director for Quality Implementation Staff, Office of Pharmaceutical Science, CDER, FDA, Co-Chair

Work Planning and Risk Management: David J. Horowitz, Esq., Director, Office of Compliance, CDER, FDA, Co-Chair; Theresa Mullin, Ph.D., Associate Commissioner for Planning and Evaluation, CDER, FDA, Co-Chair

Manufacturing Science: Ajaz Hussain, Ph.D., Deputy Director, Office of Pharmaceutical Science, CDER, FDA

Quality Systems: Janet Woodcock, M.D., Director, CDER, FDA

International Activities: Janet Showalter, Director, International Scientific Activities and Standards Staff, Office of International Programs, CDER, FDA

Dispute Resolution: David J. Horowitz, Esq., Director, Office of Compliance, CDER, FDA, Co-Chair; Helen N. Winkle, Acting Director, Operations Staff, Office of Pharmaceutical Science, CDER, FDA, Co-Chair

483 Communications: Peter Beckerman, Esq., Office of Chief Counsel, CDER, FDA, Co-Chair; Deborah D. Ralston, Director, Office of Regional Operations, CDER, FDA, Co-Chair

Product Specialist on Inspection Teams: Ajaz Hussain, Ph.D., Deputy Director, Office of Pharmaceutical Science, CDER, FDA

Pharmaceutical Inspectorate: Janet Woodcock, M.D., Director, CDER, FDA, Co-Chair; Susan Setterberg, Central Regional Director, CDER, FDA, Co-Chair

Evaluation of the Initiative: Janet Woodcock, M.D., Director, CDER, FDA, Co-Chair; Theresa Mullin, Ph.D., Associate Commissioner for Planning and Evaluation, CDER, FDA, Co-Chair ■

—William Stoedter

Considerations Regarding Pharmaceutical Company Employees Who Have Received the Smallpox Vaccine

Richard M. Johnson, Director, Information & Policy QCOE-Drugs, Abbott Laboratories*

There has been a lot of discussion in the news about the smallpox vaccine, including guidance from the CBER and CDC regarding the potential shedding of live virus from those vaccinated. As manufacturers you should consider the potential impact on product safety from employees who, as members of the Armed Service Reserve, or Emergency Preparedness teams, may be vaccinated. 21 CFR Section 211.28 (d) states:

> (d) Any person shown at any time (either by medical examination or supervisory observation) to have an apparent illness or open lesions that may adversely affect the safety or quality of drug products shall be excluded from direct contact with components, drug product containers, closures, in-process materials, and drug products until the condition is corrected or determined by competent medical personnel not to jeopardize the safety or quality of drug products. All personnel shall be instructed to report to supervisory personnel any health conditions that may have an adverse effect on drug products.

As manufacturers you should consider the potential impact on product safety from employees who...may be vaccinated.

While clear guidance is not yet available from the FDA, you should consider developing an internal policy which clarifies whether recently vaccinated persons might need to be restricted from certain areas of your facilities, and if so, for how long. Such policies should be developed in conjunction with medical and scientific advice. ■

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European News

European Agency for the Evaluation of Medicinal Products (EMEA) In its meeting on 10 February 2003, The Standing Committees on medicinal products for human use and on veterinary medicinal products issued a favourable opinion—by qualified majority—for the adoption by the European Commission of a draft Commission Regulation amending Council Regulation (EC) n° 297/95 regarding fees payable to the European Agency for the Evaluation of Medicinal Products. The Regulation will increase all fees by 16%, except the annual fee, which will be increased by 26%. The Regulation is being finalised and will be submitted to the Commission for final adoption soon. This new Regulation shall enter into force on the day following that of its publication in the *Official Journal of the European Communities*.

Directorate General Enterprise released an updated version of Chapter 7, "General Information" of the Notice to Applicants on Medicinal Products regarding the procedures for marketing authorisation, including information for applications made in the CTD format.

Notice to Applicants, Volume 2B, Common Technical Document (CTD) A revised version of the "Questions and Answers" document related to the CTD is available. The revisions cover:

- An update of question 11 concerning "Mutual Recognition."
- New questions, in particular: (1) question 15 concerning "European Drug Master Files (EDMF) – format," and (2) question 16 concerning "European Drug Master File and Variations."

For details on the above EMEA news, please visit: http://pharmacos.eudra.org/F2/pharmacos/docs.htm#news.

EFPIA Welcomes Increased Public Funding for Diseases of Poverty, but Warns Against Undermining Future Research — *Brussels, 5 February 2003* The European Federation of Pharmaceutical Industries and Associations (EFPIA) welcomes the European Parliament's adoption of the draft Regulation that promotes increasing aid for poverty-related diseases (HIV/AIDS, malaria and tuberculosis) in developing countries.

"Increased funding from rich countries is the absolute priority to improve access to healthcare in the developing world," stressed Brian Ager, EFPIA Director General. "We are therefore very pleased to see Europe committed to increase its own contribution to the global fight against poverty-related diseases, at a time when U.S. President George Bush is also announcing a major Emergency Plan to combat the international HIV/AIDS Pandemic." More resources are needed to: strengthen local healthcare infrastructure; build hospitals; provide clean water; train doctors; educate people; and to diagnose and prevent the spread of killer diseases, etc. Improving global access to essential high-quality and affordable medicines in poor countries is, of course, a key component of this initiative, and pharmaceutical companies are committed to play their part. However, medicines are only part of the solution.

Brian Ager confirmed that the pharmaceutical industry in Europe remains committed to an agreement that enables poor nations to respond to health emergencies. This reflects upon the current World Trade Organisation (WTO) negotiations aimed at facilitating the use of existing flexibilities of the TRIPS (Trade-Related Intellectual Property Rights) Agreement by poor countries lacking domestic manufacturing capacity. The solution, however, should aim at improving access to medicines for poor countries. "If the result of the current negotiations is to damage the world system of intellectual property protection, it would be a major blow for today's and tomorrow's patients," warned the EFPIA Director General.

EFPIA believes that the scope of the proposed solution should be focused on HIV/AIDS, malaria, TB and other infectious epidemics of comparable scale and gravity. Importing countries, exporting countries and pharmaceutical manufacturers all have key roles to play in establishing an effective system. More generally, it must be understood that there is no correlation between a low level of patent protection and more access to medicines. In fact, over 95% of all medicines on the World Health Organization (WHO) "Drugs Essential List" are off-patent, and studies show that there are relatively few patents on AIDS drugs in Africa. However, the role of IPRs is absolutely critical for the development of new cures, including for diseases prevalent in the developing world, economic growth and development. "We should fight poverty, not patents!" Carl Bildt, former Prime Minister of Sweden, aptly pointed out.

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—Gautam Maitra

USP Update

April 2003

by Roger Dabbah, Ph.D., USP

The Pharmacopeial Forum (PF) of March–April 2003 [29(2)] has been completed and will be released shortly. For those who are not familiar with PF there is a Staff Directory which shows for each staff person a telephone number, an e-mail address and their assignments. Inquiries to the staff members are welcomed. You can call the staff member responsible for a given item directly. Also in PF is the calendar for Pharmacopeial Education courses.

The March–April PF contains the Second Interim Revision Announcement that will become Official on April 1, 2003. Changes to the following monographs are included: Atovaquone Oral Suspension (Related Compounds and Assay); Cefepime for Injection; Flucytosine Capsules (Dissolution); Pentoxifylline Extended- Release Tablets (Drug Release); Vitamin E Capsules (Packaging and Storage). Also included are changes in the Procedure in <281>Residue on Ignition.

New USP monographs in the in-process section of the same PF include: Cyclopirox; Egg Phospholupids; Fluoxetine Delayed-Release Capsules; Gadoversetamide & Gadoversetamide Injection; Lipid Injectable Emulsion; Omeprazole Delayed-Release Capsules; Red Blood Cells & Whole Blood full monographs; Tobramycin Inhalation Solution; Verteporfin; Zileuton.

New NF monographs in the in-process section include: Aspartame Acesulfame; Gellan Gum; Glyceryl Distearate; Glyceryl Monolinoleate; Glyceryl Monooleate; Lutein & Lutein Preparation; Medium –Chain Triglycerides.

The Chapter on Injection<1> in the In-Process section is modified by the addition of requirements for neuromuscular blocking and paralyzing agents. A new general chapter <429> Light Diffraction Measurement of Particle Size is also included. Another chapter, <1075> Good Compounding Practices is also being proposed.

The brochure for the USP Conference on Biological and Biotechnological Drug Substances and Products (April 1–4), at the Marriott Crystal Gateway in Crystal City, VA has been completed. You can register on line at www.usp.org/conferences. ■

2003 International Calendar 2003

MAY

May 5–9, 2003
2003 PDA International Congress, Courses and Tabletop Exhibits
Congress: May 7–9
Courses: May 5–7
Tabletop Exhibits: May 7–8
The Ritz Carlton Millenia
Singapore, SINGAPORE
PDA-TRI Lecture Courses:
May 5–6
A Practical Approach to Aseptic Processing and Contamination Control
Basic Concepts in Cleaning and Cleaning Validation
Active Pharmaceutical Ingredients: Manufacture & Validation
May 5–7
Requirements and Preparation of Pharmaceutical Grade Waters

May 12–14, 2003
ICH Q7A Training Workshop
Good Manufacturing Practice Guidance for Active Pharmaceutical Ingredients
Hotel TBA
Tokyo, JAPAN

JUNE

June 23–25, 2003
PDA-TRI Toronto Course Series
Westin Harbour Castle
Toronto, CANADA
PDA-TRI Lecture Courses:
June 23
Failures/Deviations and Change Control
Achieving CGMP Compliance during Development of a Biotechnology Product
June 23–24
Basic Concepts in Cleaning and Cleaning Validation
Active Pharmaceutical Ingredients: Manufacture & Validation
CGMP & Compliance
June 23–25
Tablet Formulation
June 24
Z1.4 Attribute Inspection Sampling in a CGMP Environment
June 24–25
Knowledge & Skills of the Successful QA/QC Manager in the Pharmaceutical Industry
June 25
Assay Validation
Designing, Monitoring and Validation of Pharmaceutical Manufacturing Ventilation Systems
Radiation Dosimetry & Calibration

June 23–27, 2003
PDA Italy Chapter Presents
Sterile Manufacturing Practices in the Third Millennium: A Regulatory and Industry Perspective
Melia Milano Hotel
Milan, ITALY
Conference: June 23–25
Course: June 25–27
PDA-TRI Lecture Course:
June 25–27
Design, Engineering and Validation of Isolators for Pharmaceutical Applications

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June 30, 2003
PDA Presents
Basel Pharmaceutical Forums
UBS Ausbildungs-und Konferenzzentrum
Basel, SWITZERLAND

SEPTEMBER

September 29, 2003
PDA Presents
Basel Pharmaceutical Forums
UBS Ausbildungs-und Konferenzzentrum
Basel, SWITZERLAND

DECEMBER

December 15, 2003
PDA Presents
Basel Pharmaceutical Forums
UBS Ausbildungs-und Konferenzzentrum
Basel, SWITZERLAND

PDA
An International Association For Pharmaceutical Science And Technology

PQRI Aseptic Processing Working Group Develops Comments on Aseptic Processing Guidance

The Product Quality Research Institute (PQRI) has formed a Working Group to review controversial sections of the draft FDA Aseptic Processing Concept Paper and to provide input to FDA to be considered in the draft Aseptic Processing Guidance Document, tentatively scheduled for publication during the second quarter of 2003.

The group, chaired by Glenn Wright, Eli Lilly & Company, is composed of about 30 individuals representing industry, FDA and academia.

The group will cover a defined list of points, divided into two categories: points for which recommendations will be made, and points for which clarifying comments will be generated. The first meeting took place the first week in January, and the final meeting was scheduled for March 4 as the April *PDA Letter* went to press.

The deliverables and the processes that were followed are outlined below. An industry survey was used to provide real-world data.

- Clarifications:
  - Clarifications on eight specific topics were covered;
  - Topic leaders were chosen from the PQRI Working Group for each point;
  - Suggested redline clarifications were made by the Working Group and were sent to the topic leader;
  - The topic leader collected and collated the suggested clarifications and developed a redline strikeout version of the text incorporating the various suggestions;
  - The topic leader led discussions on the clarifications and made necessary modifications;
  - A final clarification was developed and approved by the Working Group; and
  - The redline clarifications were sent to the PQRI steering committee for approval.
- Survey:
  - An industry survey was performed to collect up-to-date industry information on current aseptic processing practices;
  - The surveys were blinded by PQRI and data-tabulated; and
  - The tabulated data was provided to the Working Group for evaluation and for use in developing recommendations.
- Recommendations:
  - Recommendations on 10 specific topics were considered;
  - Discussions relating to environmental monitoring and sterilization options were led by Carol Lampe, Baxter Healthcare Corporation, while the discussions on process simulation and aseptic processing isolators were led by Richard Johnson; and
  - Final recommendations were approved by the Working Group and sent to the PQRI steering committee for approval.

The completed clarifications and recommendations will be used by FDA in developing the draft Aseptic Processing Guidance Document tentatively scheduled for publication during the second quarter of 2003. ■

—Russell E. Madsen

PDA Publishes "Points to Consider for Aseptic Processing"

"Points to Consider for Aseptic Processing" has been published as a supplement to the March/April 2003 issue of the *PDA Journal of Pharmaceutical Science and Technology*.

Background

PDA held a Special Scientific Forum on Environmental Monitoring and Aseptic Processing on August 21, 2000, at the Hyatt Regency Bethesda. The forum provided an excellent opportunity for a discussion among FDA and industry experts on several key issues which have been an ongoing source of confusion regarding the current regulatory expectations. Those issues included the location of airflow measurements in critical areas, surface monitoring of sterile product contact surfaces, how to handle alert and action level excursions during environmental monitoring in aseptic areas, identification requirements for sterility tests and environmental monitoring isolates, media fill acceptance criteria and incubation conditions and requirements, and gowning qualifications.

Although there was consensus among forum panelists on many of the issues, others were more controversial, indicating the need for further study and evaluation. This need led to the formation of a PDA Aseptic Processing Task Force to develop scientifically-based positions on these issues and to publish a technical document containing "best practices" for use by the pharmaceutical industry.

The completed document represents over 18 months of dedicated work by the Task Force members. It presents the issues framed as problem statements with both a recommendation and a rationale for the recommendation provided. Some of the topics included in this 72-page report are:

- Airflow velocity and patterns;
- Critical area environments;
- Differential pressures;
- HEPA filter testing and patching;
- Setting environmental monitoring alert and action levels;
- The relationship of environmental monitoring results to batch release;
- Investigation of environmental monitoring excursions;
- Critical surfaces;
- Process simulation acceptance criteria;
- Incubation of normally excluded units;
- Interventions;
- Duration of process simulation tests;
- Number of media-filled units.

As usual, the document is provided free to PDA members at the time of publication. Additional copies are available for purchase.

PDA thanks the following Aseptic Processing Task Force members for their contributions to this important effort:

David J. Miner, Ph.D., and Glenn E. Wright (Co-Chairs), *Eli Lilly & Co.*
James P. Agalloco, *Agalloco & Associates*
William R. Frieben, Ph.D., *Pharmacia Corporation*
Nigel Halls, Ph.D., *GlaxoSmithKline* (retired)
Richard M. Johnson, *Abbott Laboratories*
Carol M. Lampe, *Baxter Healthcare Corporation*
Russell E. Madsen, *PDA*
Andy Minor, *Eli Lilly & Co.*
Kenneth Muhvich, Ph.D., *Micro-Reliance*
Terry Munson, *KMI/PAREXEL International, LLC*
Richard N. Prince, Ph.D., *Richard Prince Associates*
Leonard W. Mestrandrea, Ph.D., *Pfizer, Inc.*
Dr. Andreas Sachse, *Schering AG*
Ian Symonds, *GlaxoSmithKline*
Martin Van Trieste, *Abbott Laboratories*
Richard T. Wood, Ph.D., *Pfizer, Inc.* ■

—Russell E. Madsen

Editor's Note: The March/April *Journal* ships late March. Members should allow 2–6 weeks for delivery, depending on your location.

"Process Analytical Technology (PAT)—Moving from Inspection to Prevention?"[1]

by Karen Welch, Keith Wickert, and Mark Balboni, KMI/PAREXEL International, LLC

For years the pharmaceutical industry has been seeking ways to enable cost-effective changes in pharmaceutical manufacturing processes. It is recognized that more efficient processing, capable of delivering higher quality products, is achievable through enhanced process understanding and effective process control. This conference provided a platform to discuss the various elements in the implementation of Process Analytical Technology (PAT) strategies in drug development, process validation, and routine manufacturing. It was also an opportunity to hear from FDA leadership on their vision for an integrated drug quality system.[2]

PAT is defined as:

- systems for analysis and control of manufacturing processes based on timely measurements of critical quality parameters and performance attributes of raw and in-process materials; and
- processes to assure acceptable end product quality at the completion of the process.

Dr. Ajaz Hussain, Director of the Division of Product Quality Research (DPQR) in the Center for Drug Evaluation and Research (CDER), FDA, presented the following perceptions of today's manufacturing processes[3]:

- large inefficient batch equipment;
- low utilization (30–40% on average);
- capital and labor intensive;
- high inventories and excessive warehouse space;
- elaborate HVAC and mechanical segregation;
- high transportation and operating costs;
- low product yields;
- excessive amounts of product non-conformities; and
- long lead-times due to stage and final product testing.

Janet Woodcock, M.D., Director of the Center for Drug Evaluation and Research (CDER), FDA, presented the following issues in drug quality regulation, from the regulator, industry, and public perspectives:

- FDA utilizes a resource intensive regulatory system. They are involved in expensive and time-consuming litigation and legal actions, and need to deal with recalls and shortages of medically necessary drugs—many of which are due to manufacturing problems.
- The pharmaceutical industry is highly regulated, at a high cost. The consequences of noncompliance are potentially catastrophic for the manufacturer. The culture is the antithesis of continuous improvement (inability to change specs, etc). Process efficiency and effectiveness are low (high wastage & rework) and the level of technology is not cutting-edge.
- The public views the cost of drugs as very high, which causes hostility towards the pharmaceutical industry, and a fear of policy changes portrayed as deregulation.

"There has been a ... transfer of the ownership of manufacturing quality from industry to the Agency ..."

What can one conclude from this? Woodcock suggested that however well-meaning regulatory efforts are, they are not driving industry to more reliable innovation and investment in the manufacturing sector. There has been a defacto transfer of the ownership of manufacturing quality from industry to the Agency—and that it is not a proper role for regulators.

FDA's PAT Initiative is designed to help industry and the agency improve their ability to ensure product quality is 'built in' or is 'by design'—the true spirit of cGMP. The initiative should be viewed in combination with "Pharmaceutical cGMP's for the 21st Century: A Risk Based Approach,"[4] which is an evolution in FDA's approach to overseeing product quality. The drivers for industry are FDA compliance, revenue and cost pressures, which are consistent with existing improvement approaches—such as Six Sigma or Lean Manufacturing—which decrease variation and eliminate waste by increasing knowledge of products and processes.

One of the barriers to regulated industry in fully implementing such improvement approaches is a real or perceived belief that it will

continues on page 14

"One of the barriers ... in fully implementing such improvement approaches is a real or perceived belief that it will 'raise the bar' by increased scrutiny from FDA ... and has resulted in the "Don't Use, Don't Tell" philosophy currently prevalent in industry."

PAT from page 13

'raise the bar' by increased scrutiny from FDA, create longer inspections, delayed approvals, etc. This is due to the perception that these approaches may result in filing changes to existing registered product specifications, and has resulted in the "Don't Use, Don't Tell" philosophy currently prevalent in industry. Even when drug companies have instituted these process improvements, as some have done, their own regulatory affairs group may become a barrier to improvement.

FDA is championing this effort to increase efficiencies and to help with technological opportunities. To encourage these changes FDA is considering a research exemption, whereby companies embarking on PAT methodologies will be inspected against their already documented, registered processes, not new data derived from PAT activities.

Although In/On/At line measurement—for example in Blend processing—was one of the early applications of PAT, FDA sees PAT as an all-encompassing improvement strategy which includes multivariate statistical and pattern recognition methods, and real time data information management systems for process control. Potential benefits of PAT, as described by Erin McCaffery, CSO New Jersey District Office, are improving quality and reproducibility, facilitating scale-up and validation, reducing cycle time, facilitating determinations of assignable cause, and reducing costs and time to market. These are all the same benefits that many improvement strategies potentially offer.

FDA sees PAT as more than the use of measurement devices or state-of-the-art instrumentation. Although measurement is seen as a critical part of improvement, it will not drive change alone. (For example measurement is the "M" in the five-step **DMAIC** improvement model of Six Sigma: **D**efine, **M**easure, **A**nalyze, **I**mprove, **C**ontrol.) Understanding the complete process—from incoming raw materials to outgoing product—is required for any improvement to be valuable. Adding a high-tech measurement system to a non-value added portion of a process will have limited return on investment. Therefore, it is important to comprehensively understand the production process itself, including specifications and parameters. It is also important to understand how changes, adjustments or variability in raw material quality, operator actions or equipment reliability can affect the quality and/or safety of the final drug product.

> "Although measurement is seen as a critical part of improvement, it will not drive change alone."

Currently FDA sees three options for introducing PAT within a company:

- Use of PAT for currently marketed 'robust' products to improve efficiency;
- Use of PAT for currently marketed products that will benefit from improvement. This will include a 'step-wise' approach – first to improve quality and then to improve efficiency; and
- Use of PAT for new products in the development pipeline. PAT would be utilized throughout development and scale-up.

FDA is internally implementing the PAT initiative through teams comprised of ORA (the field), CDER and CVM members. There is a steering committee, a policy development team and PAT training coordinators, as well as inspection teams comprised of investigators, compliance officers and reviewers. The 'take-away' message is that FDA is committed to a long-term effort to promote PAT. As Woodcock stated, "PAT is the way of the future." ■

[1] This report is based on the discussions and presentations at the 38th Annual AAPS Pharmaceutical Technologies Conference, "The Key for Achieving New Standards of Development and Manufacturing Excellence and Regulatory Compliance: Process Analytical Technology (PAT)," held January 26–31, 2003 in Harriman, NY. While every effort is made for accuracy, readers should refer to the formal conference materials for complete information.

[2] For more information concerning the PAT, see www.fda.gov/cder/OPS/PAT.htm.

[3] Quality by Design: A Challenge to the Pharma Industry", (CAMP, R. Scherzer, FDA Science Board Meeting, 4/9/02)

[4] For more information on the risk based initiative, visit www.fda.gov/cder/gmp/index.htm.

PDA Board Member John Shabushnig, Ph.D., serves on the Process Analytical Technology (PAT) subcommittee of the FDA Advisory Committee for Pharmaceutical Science. Russ Madsen, PDA Senior VP for Science and Technology, serves on the Applications and Benefits Working Group, one of four expert working groups under the PAT subcommittee.

Interpretation of Standard Test Limits at the Boundary Value and Frequency of HEPA Filter Testing

The following remarks are taken from an exchange in the Pharmaceutical Sci-Tech Discussion Group, a PDA-sponsored Online Forum held on the Internet at www.pda.org. PDA Online Forums are free of charge and open to the public. They serve as a platform for exchanging practical, and sometimes theoretical, ideas within the context of some of the most challenging issues confronting the pharmaceutical industry. If you are not currently a member of a Discussion Group, we encourage you to visit our Web site and join.

This month's posting...

Question 1

In one compendial test, the test conditions for a PASS include a phrase similar to "within X +/- 10%." Question: Does "within" infer that values up to, but not including the boundary value are PASS conditions, or is the boundary value itself "within" the PASS range?

Example: PASS condition is 100 +/- 10%. The boundary limits are 90 and 110. The value 109.9 is within the boundary and is a PASS condition. But what about 110.0? Does this value satisfy the criteria for a PASS?

Response 1.1

In the example given, the specification is 100 +/- 10%. Therefore, the acceptable range is 90 to 110%.

If the calculated result is 109.9 against the above specification, it is reported as 110% and is a PASS.

If the calculated value is 110.0 against the above specification, it is reported as 110% and is a PASS.

If the calculated value is 110.6 against the above specification, it is reported as 111% and is a FAIL.

The reporting of data to a number of significant figures not detailed in the specification is meaningless. One should report data to the number of significant figures required by the specification/protocol/Pharmacopoeia, etc.

I believe there is an ISO guide on number-rounding and truncation.

Response 1.2

The answer is yes. Either 110.0 or 90.0 PASS the test.

Response 1.3

This is most likely a PASS. Since your condition is 100 without any decimal points, all data is to be rounded to the significant digits of the specification (3). Thus, if you use USP rounding, passing would be between 89.950 (rounded to 90.0) through 100.4999 (rounded to 100), inclusive. However, if your rounding SOP has another interpretation, then you must default to its rules.

Response 1.4

My interpretation is that the boundary conditions of +/- 10% do lie within the specifications. However, although the precision of the limits would seem to allow even 110.4%, which can be rounded to 110%, this is a dangerous position to take, and I believe USP recommends not rounding down or up to a particular limit.

[Editor's note: USP provides specific examples under *General Notices*, Significant Figures and Tolerances. For example, if the assay limit is $\geq$ 98.0% and the assay result is 97.96%, the rounded result is 98.0% and the result conforms; if the assay result is 97.92%, the rounded result is 97.9%, and the result does not conform. (USP 25, p. 4)]

Response 1.5

It appears that there is still disagreement on the definition of 100 +/-10%, and I'm a little confused. If I understand them correctly, one responder states that the acceptable range is "90 to 110%"; another indicates that the lower limit is "90.0" while the upper limit is "110." Both are trying to apply the USP criteria (I think). The USP states, "The observed or calculated values usually will contain more significant figures than there are in the stated limit, and an observed or calculated result is to be rounded off to the number of places that is in agreement with the limit expression ..". It sounds to me that this statement is ambiguous.

What does "the number of places" mean in the case of the above specification? The number "100" uses 3 places. So, one could interpret that to mean "90.0 to 110%," and any value less than 100 would contain a digit after the decimal point. Any value greater than or equal to 100 would be reported with no decimal places.

One could also interpret this to mean the "number of places after the decimal point." In this case, the limits would be "90 to 110," and all values would be reported to zero decimal places.

Unfortunately, the USP gives examples but does not address this question. Can anyone clarify this for me?

Response 1.6

A forum member wrote, " … I believe USP recommends not rounding down or up to a particular limit."

I am not sure how you arrived at this belief, but I believe it is incorrect.

From USP 25, p.4:

"The limits expressed in monograph definitions and tests … are considered significant to the last digit shown."

"Analytical results observed in the laboratory (or calculated from experimental measurements) are compared with stated limits to determine whether there is conformance with compendial assay or test requirements. The observed or calculated values usually will contain more significant figures than there are in the stated limit, and an observed or calculated result is to be rounded off to the number of places that is in agreement with the limit expression … "

Thus, the difference between a requirement of NMT 110 and NMT 110.0 is whether 110.4 passes or not.

This understanding of how specifications are to be applied is consistent with ASTM E29 and historical practice in the industry.

Response 1.7

Thank you. I am glad to have the opinion of a statistician. My question was a little different than the original question. I was asking if 100% +/- 10% meant 90.0% to 110% or 90% to 110% (or something different) based upon the USP passage. I understand your point and have no question on 89.6% passing a lower limit of 90%, but not a lower limit of 90.0%. My question is "what is the correct way to express the limit expression?"

Response 1.8

A little earlier on p. 4 of USP 25, it clearly states:

"The limits expressed in monograph definitions and tests … are considered significant to the last digit shown."

I do not see how you could get 90.0% from 100%–10%. Under the USP definition neither 100% nor 10% is significant to a tenth of a percent.

Response 1.9

To put it simply in the example specification quoted 100 +/- 10% no decimal point and no places post decimal point should be quoted, therefore anything at or above 89.5 = 90 and is OK and anything at or below 110.4 = 110 and is OK. In these examples, one must not report those decimal values as they are not significant, and one cannot use the argument that as 100 = 3 digits therefore the value below 100 must also equal 3 digits i.e., 90.0 (sic). In the case quoted the "point zero" are not significant.

Response 1.10

The USP uses the term "number of places" rather than "significant figures" as a way to indicate how to round results after the decimal. In your case, the limits would be 90% to 100%. If your limit was stated as 100.0 +/-10.0%, then your limit would be 90.0% to 110.0%. Look at some vendors' COAs for some USP materials from a VWR or Fisher catalog. You will see this type of rounding.

Response 1.11

The correct way to present the limit based on the information stated is 90–110 %; it is NOT 90.0–110. As stated previously the "point zero" is meaningless in the context of the example given.

Question 2

An outside auditor recommended that we test HEPA filters twice/year. Practically, we understand it is sufficient as only once/year. Is there any guiding reference for the testing frequency?

Response 2.1

I don't like to comment on the opinion of regulators regarding test frequency of anything, because it typically will vary depending on the individual that you're talking to. Recognizing that investigation of a failed post-use HEPA certification must include an assessment of product impact, I believe that the answer largely is one of how much risk you're willing to accept. For certification of critical HEPAs (e.g., those in a laminar flow unit servicing the filling room), I'd be unwilling to go more than 3 or (at most) 6 months between certifications. For non-critical applications, (e.g., terminal HEPAs servicing a class 100,000 environment), something much more liberal could certainly be justified, maybe 1 or even 2 years, depending on the potential product risk.

Response 2.2

In your maintenance program of the HEPA filters, you should check more frequently the prefilters and the HEPA filters with the attention on the differential pressure (check the working pressure of the filter with your supplier) and also and more important, with the routine test for Filter air flow and particle counting.

Specific tests for HEPA filter integrity should be performed once a year, or if one of the previous checks is out of specifications.

Response 2.3

I think that it's important to point out that differential pressure monitoring across HEPA filters is not (in the applications that I'm aware of) a GMP concern, so long as you are maintaining your air balancing parameters (i.e., air exchange and room delta P) and (if applicable) air velocity. The reason that you'd care about delta P across your filter is economic (i.e., you're paying for the energy to overcome the pressure drop), so economy would be the driver for monitoring (actually, a loaded filter will do a better job of removing particulate than a new one). ■

—compiled by Russell E. Madsen

Company, Colleague & Product Announcements

SAS recently announced that **Dr. Edward Helton**, Chief Strategist of Regulatory and Biomedical Affairs, was elected to a three-year term on the Board of Directors for the Clinical Data Interchange Standards Consortium (CDISC). The CDISC mission is to lead the development of global, vendor-neutral, platform-independent standards to improve data quality and accelerate product development in the pharmaceutical industry. Helton's election to the CDISC Board deepens SAS' already substantial commitment to the international standards group. Helton has more than 20 years of experience in the design and FDA submission of pharmacokinetic, efficacy and safety data of recombinant drugs, synthetic peptides, endogenous products and low molecular weight lipophilic xenobiotics. For more information, contact Bob Chase at SAS Media Relations at (919) 531-4327 or at bob.chase@sas.com.

Pfizer Inc. announced that it will begin utilizing an innovative new bar code technology on its Hospital Unit Dose products in an effort to help reduce dispensing errors at hospitals and pharmacies nationwide. The new bar code system, developed in accordance with the new Reduced Space Symbology standards established by the Uniform Code Council, allows for each Pfizer unit dose of product to be identified by its national drug code (NDC), expiration date and lot number in both machine and human readable format. This miniaturized bar code, applied to product containers at the time of packaging by Pfizer, utilizes a relatively small amount of label space and can be read with conventionally available bar code readers. Although many pharmaceutical manufacturers and healthcare organizations have supported comprehensive bar code labeling, until recently, technical and financial impediments have prohibited the development of a standard system. The FDA is currently working to develop a rule that will require all drug manufacturers to place bar codes on every individual product. Currently, most medicines carry the NDC, which identifies the drug by name and dosage, but this is done voluntarily as the FDA does not require the NDC on product labeling. For more information, contact Francisco Gebauer at (212) 733-5191.

Vectech Pharmaceutical Consultants, Inc. announced the formation of a new division—**Vectech Integrated Systems**—which will provide compliance software for the regulated medical products industry. The new division will assure compliance and provide an integrated suite of moderately priced applications that address all of the key regulatory requirements including 21 CFR Part 11 and CGMP/industry standards. Since 1979, Vectech Pharmaceutical Consultants, Inc. has served the pharmaceutical, biotech, and medical device industries by providing sensible, scientific, engineered solutions which address the complex issues facing today's regulated industries. For more information, contact Vectech at (248) 478-5820, at info@vectech.com, or visit www.vectech.com.

BioReliance Corporation has developed a sensitive assay for the culture and detection of West Nile Virus (WNV) for inclusion in its viral clearance and cleaning validation studies. This will allow clients to confirm directly that the production processes used for the purification of their product will effectively remove, or inactivate WNV. The new test will also indicate the effectiveness of procedures utilized in the decontamination and cleaning of manufacturing plant and equipment against WNV. Dr. Allan Darling, Vice President of US Biologics Testing at BioReliance said, "The launch of this assay highlights our continued commitment to the biopharmaceutical industry to provide state-of-the-art testing services to ensure the safety of Biological products." For more information, visit www.bioreliance.com.

Cambrex Corporation now has a fully-functional, e-commerce software solution for their LumiTech and Celisa™ brand cell-based bioassays, BioWhittaker, Poietics™ and Cionetics™ brand cells, media, and growth factors, DNA and protein electrophoresis and separation products plus the complete product line of endotoxin detection kits, reagents, software and equipment. Visit www.cambrex.com for a full suite of commerce capabilities. ■

—compiled by Joseph G. Bury

Send announcements on personnel changes and new products . . .

. . . to Joe Bury via e-mail at bury@pda.org or mail a hard copy to PDA headquarters in Bethesda, MD.

PDA Offers Training in Japan for

ICH Q7A Good Manufacturing Practice Guidance for Active Pharmaceutical Ingredients

Komaba Eminence Hall, Oohashi 2-19-5, Meguro-ku, Tokyo, Japan
May 12–14, 2003

PDA and the PDA Japan Chapter will offer a training workshop on Q7A Guidance this May in Tokyo, Japan. The training workshop was developed in collaboration with the Pharmaceutical Research and Manufacturers of America (PhRMA), the Generic Pharmaceutical Association (GPhA), the European Agency for the Evaluation of Medicinal Products (EMEA), the UK Medicines Control Agency (MCA), the US Food and Drug Administration (FDA), Pharmaceutical Inspection Convention/Co-operation Scheme (PIC/S), European Chemical Industry Council (CEFIC), European Federation of Pharmaceutical Industries and Associations (EFPIA), Irish Pharmaceutical and Chemical Manufacturers Federation (IPCMF), and International Generic Pharmaceutical Alliance (IGPA).

The International Conference on Harmonization (ICH) Q7A Document, the first GMP guidance jointly developed between regulators and industry, is intended for use worldwide. It impacts any manufacturer who manufactures in, or intends to supply into, the ICH regions (US, Europe, and Japan).

This three-day workshop will provide training of regulatory personnel alongside industry participants. The faculty is comprised of both regulators and industry representatives who served as members of the ICH Expert Working Group that developed the document. Substantial time has been allotted for question and answer sessions.

Highlights

- This Q7A Training is being conducted by members of the Expert Working Group that developed the guidance; and
- The joint industry/regulatory/faculty participation will facilitate a mutual exchange of discussion issues on the Q7A document.

Training will be presented by members of the ICH Q7A Expert Working Group, including:

Betsy Fritschel, Johnson & Johnson;
Max Lazar, F. Hoffman La-Roche, retired;
Thomas L. Cupps, Procter & Gamble;
Lothar Hartmann, F. Hoffman La-Roche;
Alan Duff, Australian Therapeutic Goods Administration;
Gordon Munro, UK Medicines Health and Research Administration; and
Edwin Rivera, CDER, FDA, (via video and live audio).

The Q7A Guidance Document can be found on the following Web sites:

- http://www.fda.gov/cder/guidance/index.htm;
- http://www.emea.eu.int/pdfs/human/ich/410600en.pdf; and
- www.ifpma.org/ich5q.html#gmp.

Who Should Attend?

This document covers all aspects of the manufacturing, controlling, and regulating of APIs. The following professionals will benefit from this training:

- Auditors of API Manufacturing Operations;
- Agents, Brokers, Traders, Distributors, Repackers and Relabellers of APIs;
- GMP Compliance Officials;
- Process Engineers;
- Production Engineers;
- Regulatory Investigators and Compliance Officers;
- Reviewing Chemists;
- Quality Assurance/Quality Control and Regulatory Affairs Professionals; and
- Consultants to the Pharmaceutical Industry.

Learning Objectives

- Understand the intent of the Expert Working Group that developed the Q7A Guidance Document;
- Minimize variation in interpretation among industry and regulatory bodies worldwide;
- Address how the concepts of the Q7A guidance should be applied;
- Understand inspectional issues through side-by-side training of industry and regulators; and
- Understand how to interpret all 19 chapters of Q7A guidance, including special sections on APIs manufactured by cell culture/fermentation, and APIs for use in clinical trials.

The training will be conducted in English and will be translated into Japanese.

To register, visit PDA's Web site at www.pda.org. ■

—Leslie Zeck

Tokyo, Japan

Puerto Rico Conference on Current Issues in Pharmaceutical Manufacturing

San Juan, Puerto Rico: May 19–20

PDA is delighted to bring you our **Puerto Rico Conference on Current Issues in Pharmaceutical Manufacturing**. As the industry presents new challenges each day, it is our continuous commitment to address the most timely, content-rich and relevant business issues for optimum solutions to the pharmaceutical industry around the world.

Join your colleagues in San Juan and ensure that you remain at the forefront of your respective field.

Here are just a few of the notable speakers that PDA has confirmed for Puerto Rico:

Emerging Rapid Microbial Methods Technologies: Bryan S. Riley, Ph.D., is a microbiology reviewer in the Office of Pharmaceutical Science (OPS) in the Center for Drug Evaluation and Research (CDER) at FDA. In addition to reviewing NDAs and INDs, he is also involved in other scientific and regulatory issues. These issues include the use of rapid microbiology methods for pharmaceuticals, microbial standards and methods for inhalation drug products, and providing guidance for industry about product quality microbiology. Riley received his B.S. and M.S. degrees in microbiology from Texas Tech University, and his Ph.D. in microbiology from the University of North Texas (1989). He was a post-doctoral fellow at the University of Texas Southwestern Medical Center at Dallas and prior to coming to FDA he directed a molecular diagnostic microbiology laboratory.

Prepare Yourself for FDA's System Based Inspections: Eric Weilage currently works as a Senior Compliance Consultant for KMI/PAREXEL International, LLC, a division of Parexel International. Prior to joining KMI, Weilage worked for 11 years as an FDA Investigator, Drug Specialist, and Pre-Approval Inspection Manager in FDA's Atlanta District. He served on two of FDA's National Course Advisory Groups: Basic Drug School and Pre-Approval Training for Investigators.

Part 11 Compliance: FDA Expectations: Sean W. Hilscher is a Compliance Consultant with KMI/PAREXEL International, LLC. He joined KMI/PAREXEL in 1998. Mr. Hilscher brings eight years of experience with the FDA. Prior to joining KMI/PAREXEL, he was an Investigator (Automated Systems Specialist) in the Atlanta District. He was the Lead Auditor for Quality and Good Manufacturing Practice (cGMP) Audits of regulated firms, specializing in the medical device and biologics industries. Mr. Hilscher performed inspections of medical devices and in vitro diagnostic test kit manufacturers. He also performed inspections of drug and biologics manufacturers, identifying deficiencies and proposing corrective actions. Mr. Hilscher had been a member of FDA's Foreign Inspection Cadre since 1993. Mr. Hilscher received his B.S. in Microbiology from the University of Georgia located in Athens. Mr. Hilscher is a member of the Institute of Electrical and Electronic Engineers.

Increasing Compliance with Technology: Herbert (Skip) R. Garrison is employed at Answerthink, Inc. in the SAP Business Applications group. At Answerthink, Skip is focused on developing and implementing enterprise solutions within the FDA regulated Life Sciences and Medical Device industry. His particular focus is on business development, pre-sales support, formulation of conceptual solutions and implementation visions, and delivering quality assurance for mySAP.com R/3 projects. Functional focus includes: Document Management, R&D Administration, Financial Management, Quality Management, cGMP Regulated Manufacturing, and Logistics. Skip is a regular industry speaker on topics such as 21 CFR Part 11 and Computer Validation.

Find complete program content at www.pda.org.

Hotel Reservations:

Inter-Continental
5961 Isla Verde Avenue
San Juan, Puerto Rico 00979

Tel: +1 787 791 6100, ext. 53
(800) 443-2009

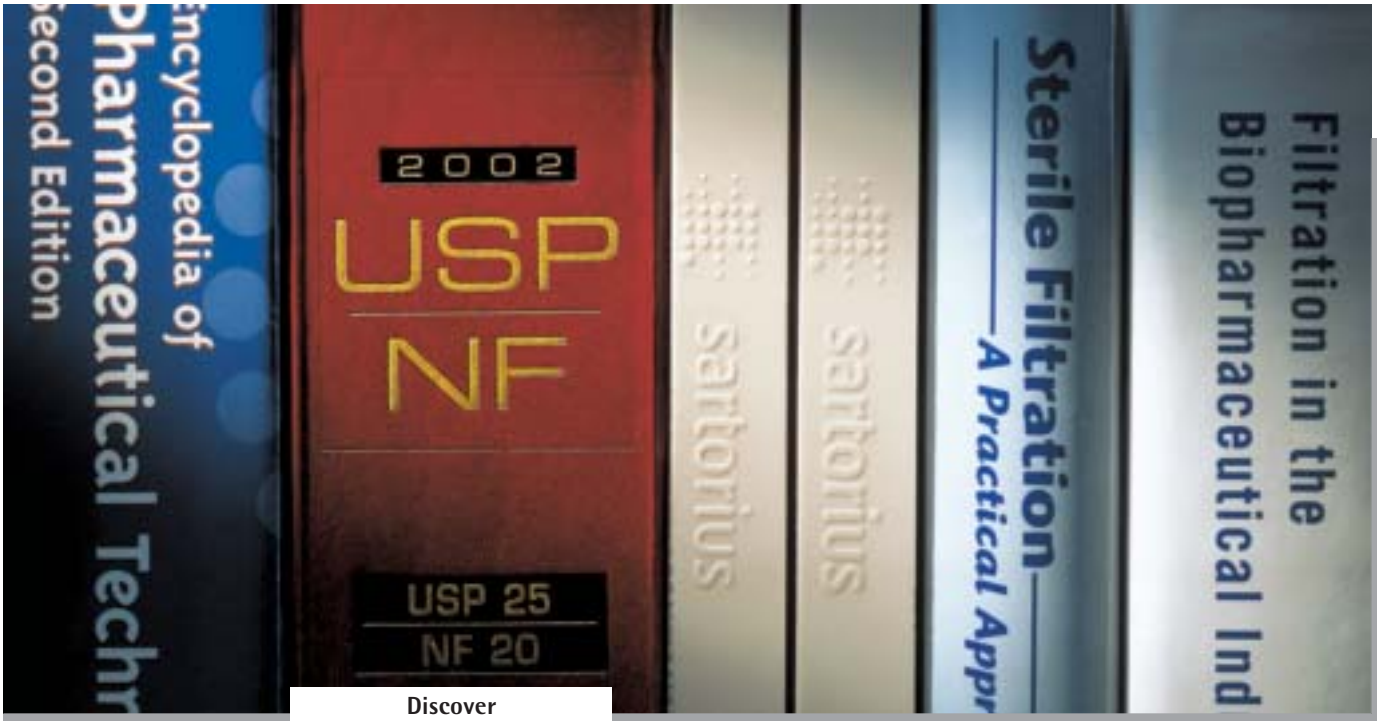
Single rate: $149 plus tax

For questions contact Lisa Wade, (301) 656-5900, ext. 119 or wade@pda.org. ■

—Lisa Wade

San Juan, Puerto Rico

sartorius



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2003 PDA/FDA Joint Regulatory Conference, Courses and Tabletop Exhibits

Lester Crawford, Ph.D., DVM, Deputy Director, FDA, and Gerry Migliaccio, Vice President, Pfizer, Inc., Have Confirmed Their Appearance

"Navigating Current GMPs: Catch the Compliance Wave"

Conference: September 8–10 •
Courses: September 11–12 •
Tabletop Exhibits: September 8–9
Omni Shoreham Hotel, Washington, D.C.

An impressive listing of industry and regulatory presenters is being finalized for the 2003 joint regulatory conference. Watch www.pda.org for an updated agenda and information on interactive sessions, breakfast forums and luncheon discussions.

Who Should Attend?

Individuals involved in pharmaceutical, biopharmaceutical product development, regulatory approval, production and quality assurance—including those associated with drug product manufacture, service providers, contract services and US and international regulatory authorities will benefit from participation in this important conference.

Session discussion topics will include:

- Navigating Legal Waters & Compliance Currents;
- Riding the Changing Compliance Tides;
- Hot Regulatory Issues: Drug Device Combinations;
- Biopharmaceutical Process Validation Issues;
- Laboratory Issues/Case Studies;
- Inspection Trends in the USA and Europe;
- Role of the Quality Unit/Building Quality Culture, its Evolution and Where is it Going?
- HACCP, ISO Implementation;
- Dispute Resolution;
- Outsourcing and the Quality Agreement;
- Global Supply Chain: Strategic Management;
- Corrective Action/Preventive Action;
- Aseptic Processing Issues;
- Using Process Analytical Technologies; and
- Engineering and Facilities Issues.

The goals for the conference are to:

- Discuss emerging and dynamic perspectives and interpretations of CGMPs;
- Identify today's global industry trends with case studies and real life examples;
- Describe how to anticipate continuous looming new trends; and
- Identify new technologies their applications.

Please note that this conference sells out each year. Check PDA's Web site at www.pda.org for details on guaranteeing your participation in this popular and important regulatory conference. ■

—Leslie Zeck

For Exhibitor Information, contact Nahid Kiani at (301) 656-5900 ext. 128 or at kiani@pda.org.

PDA/FDA Exhibitors

Company	Booth
BD Diagnostic Systems	31
bioMerieux	24
Bioscience International, Inc	30
Carlisle Life Sciences	34
Charles River Laboratories, Biopharmaceutical Services	26
Charles River Laboratories, Endotoxin Testing Products	25
FOSS NIRsystems	32
Genesis Machinery Products	28
INTELITEC CORPORATION	5
Millipore	39
Phoenix Imperative, Inc.	56
PML Microbiologicals	4
ProPack Data Corporation	33
RCM Technologies, Inc.	27
Veltek Associates, Inc.	29
Veriteq Instruments	35

PDA-TRI Lecture Courses:

September 11
Biopharmaceutical QA/QC for Senior Management
A Risk Based Approach to CGMPS
September 11–12
Cleanroom Management
CGMP & Compliance
Preparing for an FDA Pre-Approval Inspection
September 12
Failures/Deviations and Change Control

2003 PDA Annual Meeting, Courses and Exhibition

November 10–14 • Atlanta Hilton Hotel

Don't get lost in the crowd. There is always a seat at the PDA Annual Meeting! Join PDA in Atlanta in November. PDA meetings facilitate networking. Speakers are approachable. Your questions will be answered!

Be there!

The PDA Annual Meeting will offer participants opportunities to participate in a variety of multi-tracked scientific and technical sessions, educational courses and an interactive exhibition.

Representatives from the FDA have been invited to discuss the new GMP Initiative and to discuss the first steps of its broad initiative to improve regulation of pharmaceutical manufacturing. A highlight of the conference includes a session focusing on key compliance issues. Whatever your role in your company, you won't want to miss presentations on such key topics as:

- Compliance Leadership;
- Creating a Corporate Compliance Policy;
- Corporate Compliance Responsibility and Training;
- Quality Compliance; and
- GMP Enhancements.

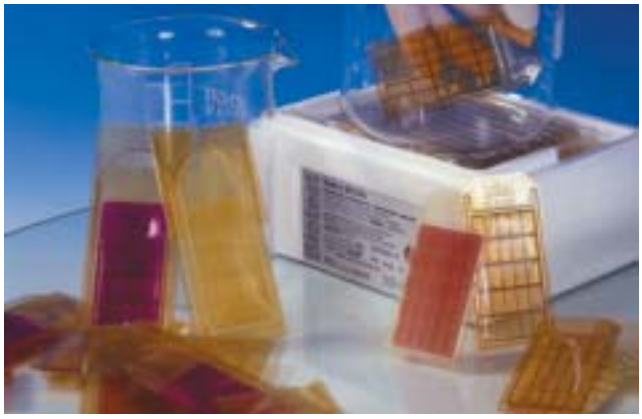
Interest Group and Task Force meetings will provide opportunities to discuss key issues in pharmaceutical manufacturing in an open forum atmosphere on such topics as:

- Lyophilization;
- Vaccines;
- Biotechnology;
- Filtration;
- Sterilization/Aseptic Processing;
- Microbiology/Environmental Monitoring;
- Visual Inspection of Parenterals;
- Contract Manufacturing;
- Solid Dosage Forms;
- Stability;
- Inspection Trends/Regulatory Affairs;
- Pharmaceutical Water;
- Training; and
- Cold Chain Management.

See you in November in Atlanta! ■

—Leslie Zeck

PDA-TRI Lecture Courses:
November 13
Designing, Monitoring & Validation of Pharmaceutical Manufacturing Ventilation Systems
Auditing Techniques for CGMP Compliance
November 13–14
Basic Concepts in Cleaning and Cleaning Validation
Computer-Related Systems Validation
A Practical Approach to Aseptic Processing and Contamination Control
November 14
Managing in a GMP Environment
Change Control & Documentation



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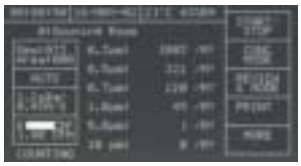

Touchscreen keypad allows direct access to all settings. All relevant sample information is on screen at all times.

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Find more information and how to set up a trial evaluation at *www.APCportable.com*

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Singapore Congress from cover

- Tsuyoshi Tanimoto, National Institute of Health, Japan.

Critical issues in pharmaceutical industry manufacturing will be discussed, with case study presentations from industry experts. A variety of educational courses will provide additional opportunities for unprecedented worldwide education, training, and applied research in pharmaceutical sciences and associated technologies. An interactive exhibition will feature the latest advances in technology and services in the industry.

What Value Will This Conference Add to You and Your Job?

All individuals engaged in manufacturing, production, quality assurance/quality control, engineering and maintenance operations, facility design, product and process development, scale up, validation, compliance and regulatory affairs, and research and development, will interact with industry colleagues and regulators to discuss new technologies, effective strategies, and regulatory compliance issues.

Also, take advantage of this unique opportunity to learn from the key leaders and members of the ICH Expert Working Group on the Q7A Guidance on how to comply with this internationally harmonized guidance.

The cost for this conference is set specifically to permit several people from one company to benefit from these cutting-edge presentations and networking opportunities.

Conference discussion topics include:

- FDA Systems Based Inspections;
- Regulatory Procedure in the EU;
- Biotechnology Issues;
- Outsourcing;
- Aseptic Processing Issues;
- ICH Issues;
- Pharmacopeial Issues; and
- Process Analytical Technologies.

Don't miss the opportunity to display your company's products and services in a tabletop exhibit. Please contact Nahid Kiani at (301) 656-5900 or kiani@pda.org for details.

Also, just prior to the Congress, on May 5–7, PDA-TRI will be offering four lecture courses covering such topics as aseptic processing, contamination control, cleaning validation, APIs, and pharmaceutical water. See the PDA calendar this issue or visit www.pda.org/PDF/03singapore-Bro.pdf for more information.

Registration and hotel information is now available on the PDA Web site, www.pda.org. ■

—Leslie Zeck

Call for Speakers and Volunteers

Are you interested in speaking at a PDA event or volunteering to serve on a Program Planning Committee?

PDA is currently accepting speaker abstracts for the 2004 International Congress in Basel and the 2004 PDA WEEK (in 2004, PDA Spring and Annual Meetings will become PDA WEEK—March 8–12, 2004). If you wish to be a volunteer speaker, please submit an abstract and your biography by the appropriate deadline to PDA in accordance with the instructions found on the homepage of PDA's Web site, www.pda.org. The Program Planning Committees will review the submissions and submitters will be notified in writing by PDA.

Basel Congress
February 16–18, 2004

PDA Week—Orlando, Florida
March 8–12, 2004

If you would like to serve on a committee, please send your biography, full contact details and areas of expertise and interest to Andrea Agalloco at agalloco@pda.org.

Prague 2003

Neal Koller, PDA President, Zdenka Mrvova, Leciva, Inc. and Gautam Maitra, Director, PDA Europe at the 2003 International Congress in Prague.

Anders Vinther, CMC Biopharmaceuticals A/S, Denmark, provides a briefing to New Members at the 2003 International Congress in Prague, Czech Republic in February.

Emer Cooke, EMEA, Stephanie Gray, GlaxoSmithKline, Trevor Deeks, Fluor, Inc., Chair, Program Planning Committee, and Milan Smid, State Institute for Drug Control, Czech Republic, serve as panelists for the opening plenary session in Prague.

Thanks to Our Exhibitors

Prague Exhibitors

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Millipore
Pall Life Sciences
PDA
Sartorius AG
Shield Medicare Ltd.
Steris
West Pharmaceutical Services

FDA and EU Health Authorities On-Site to Answer Questions

Sterile Manufacturing Practices in the Third Millennium: A Regulatory and Industry Perspective

Milan, June 23–25, 2003

by Volker Eck, Ph.D., Pharmacia

Manufacturing sterile products has followed an organic and evolutionary development over a relatively long period of time. Only lately, new concepts have been introduced, that bear the potential to induce a revolutionary change of what was previously considered well-established. Indicators of those are the new Concept Paper on Aseptic Manufacturing, issued by FDA in September 2002, the search for new and more rapid microbiological methods and their insertion into the frame of Process Analytical Techniques, promoted by FDA in late 2002.

The whole puzzle fits, considering the move by FDA to change the approach of evaluating adherence to CGMP from following line-by-line and word-by-word what has been laid out in guidelines to a conceptual hazard or risk assessment and defining rigid controls on a scientific basis from there. After all, the intent is to achieve a built-in quality, not only a tested one. This movement is very much mirrored by similar initiatives of individual health authorities in Europe and gives rise to the sensation of something substantial that is going to change.

In order to more clearly see the impact on these activities—that if viewed isolated may not be well understood—the PDA Italy Chapter is organizing a conference on Sterile Manufacturing Practices on the rise of the third millennium. The conference aims at giving a comprehensive overview of what it takes to come to a sterile product, following the process from starting materials to the final packaged good that goes out. It will give a holistic picture of the interactions, often not seen and taken into account, which may interfere when it comes to risk assessments and failure investigations of any kind. It is by design focused on practical, day-to-day problems and new approaches to resolve them.

The conference, therefore, will be of major advantage to professionals in development and production areas, who deal with pharmaceutical and analytical issues. It also will address many questions and problems for who is dealing with manufacturing sterile products from a Quality Assurance perspective. For those dealing with submissions for registration, addressing the concepts of risk and hazard assessment and learning to delineate the consequences in designing premises, processes and controls and their respective regulatory documentation will be beneficial. Senior FDA and European health authorities will be speaking. There will be the possibility to discuss with representatives from health authorities about what comes next and how to accommodate these emerging requirements. The conference will be conducted in English, with simultaneous translation to Italian for those who desire it.

Don't hesitate. Register now for this important venue!

Details can be found on the PDA Web site, www.pda.org. ■

Upcoming Chapter Events

MAY

May 22, 2003
UK & Ireland Chapter Meeting
Directive 2001//20/EC and Annex 13
Britannia International, Canary Wharf, London, UK

JUNE

June 6, 2003
PDA Southeast Chapter Golf Outing
Location TBA

June 23–27, 2003
PDA Italy Chapter Presents
Sterile Manufacturing Practices in the Third Millennium: A Regulatory and Industry Perspective
Melia Milano Hotel, Milan, ITALY
Conference: June 23–25
Course: June 25–27

SEPTEMBER

September 3, 2003
UK & Ireland Chapter Meeting
Training Strategies
Royal Pharmaceutical Society, UK

September 24–25, 2003
UK & Ireland Chapter Meeting
What to Do When Things Go Wrong
Britannia International, Canary Wharf, London, UK

PDA-TRI Director's Message

As this month's issue goes to press I want to update our membership on PDA-TRI activities that occurred in January and February. First, our thanks to Bonfiglioli Pharma for their donation of a state-of-the-art vial leak-testing unit. The unit is capable of rapidly detecting leaks in a vial's container closure system. I also want to acknowledge the efforts of Dale Seiberling for organizing a coalition of 11 groups for the production and donation of a mini-CIP skid to PDA-TRI. The unit has been successfully used in the PDA-TRI lab course on Cleaning Validation.

Our faculty does not simply teach *for* PDA-TRI, they are an integral part *of* PDA-TRI.

Occasionally, PDA-TRI has the opportunity to contribute to the local community. On January 22nd, PDA-TRI hosted a brief facility tour for the SEEK Home School, a local home schooling group. Students of all ages and their parents learned how drugs were manufactured and tested. David Matsuhiro, one of the faculty in the Aseptic Processing course happened to be on-site preparing for the upcoming Aseptic Processing course. Without a second thought, David joined in the educational experience of these young students with microbiology demonstrations using agar touch-plate finger sampling of each of the students. Several days later the students learned a lesson about "germs" (i.e., bacteria) and the importance of hand washing when they received photos of their own touch plates (taken by PDA-TRI staff). Some of the growth on the media plates was impressive! The group also received an interactive demonstration of the vial filling process using the National Instruments filling line on loan to PDA-TRI. Assisted by PDA-TRI lab education coordinator Juner Torres, David engaged several of the students in the process by having them load vials, stoppers and overseals into the equipment. Students, parents, faculty, and staff all contributed to a unique, and most satisfying educational experience at PDA-TRI.

SNOW! A lot of it, descended upon PDA-TRI's home area of Baltimore this winter. While it ended the region's recent drought condition, it contributed much anxiety to our faculty, students, and staff. For example, the Mycology Identification course—interrupted by a December snowstorm—was completed in January. PDA-TRI faculty member John Brecker arrived the day before the "make-up" date in January during—you guessed it—yet another snowstorm. Through his perseverance, and with a bit of luck, the course was held as scheduled the following day.

In February, President's Day weekend arrived along with 27 inches of snow in our area; the second greatest snowfall on record in Baltimore. Airports were shut down and roads were hazardous or impassable. And, of course, there was a PDA-TRI lab course (Cleaning Validation) scheduled to begin in two days. Please, pass me a pint of Mylanta and a dozen Prilosec capsules! Quick thinking, determination, airport and Amtrak efforts provided the means for the faculty and attendees and staff to arrive for the (slightly delayed) start of the course.

Facility tours and snowstorms make for interesting stories. There is, however, a more important point that I want to make: that PDA-TRI is blessed with an outstanding faculty. These skilled and knowledgeable men and women not only provide the highest level of training to you, our membership, but they demonstrate their commitment, desire, and love of PDA through their professionalism and willingness to assist in areas outside of their normal teaching duties. More than once I have witnessed them "going the extra mile" for their students, covering a course segment when a colleague was unable to attend, and even performing "emergency" repair and maintenance on PDA-TRI equipment. Our faculty does not simply teach *for* PDA-TRI, they are an integral part *of* PDA-TRI. All too often they receive little or no acknowledgement. As the head of PDA-TRI, I hope to reverse that trend.

To all of our dedicated and extremely hard working faculty I say, "Thank You!" We, the staff of PDA and PDA-TRI, and the membership, truly appreciate your efforts. ■

—Robert Mello, Ph.D.

PDA-TRI faculty member David Matsuhiro (far left) and PDA-TRI staffer Juner Torres (in cleanroom attire) present a microbiology demonstration to students and parents of the SEEK home schooling group.

Italian Inspectorate Course from cover

from the Instituto Superiore di Sanita (all with pharmaceutical and biologics/biotech backgrounds) attended the first module, which included lectures and two case study discussions dealing with "real life" situations and regulatory solutions.

Module One was taught by Dr. Joerg Neuhaus of the German Federal Inspectorate, Cologne and James Lyda, KMI-Parexel Europe, Basel. The instructors focused on general GMP principles, basics of inspection techniques and approach, and the content of Annexes 6, 13 and 18 of the EU GMP Guide. Dr. Carmen M. Wagner, Course Director and President of Strategic Compliance International, Inc., facilitated the module and moderated one of the case study discussions. The course delivery was in English.

Special credit for making the project successful goes to Dr. Carlo Pini, Instituto Superiore di Sanita, Rome, who has worked long and hard with Dr. Wagner and her team to design the course objectives and goals. The project is the culmination of efforts by PDA Italy Chapter leaders Antonino Giannetto, SIFI and Vincenzo Baselli, Pall Italia, both of the Italy PDA Chapter, to further enhance PDA's growth and effectiveness in Italy and Europe. The PDA effort was lead by the US PDA Headquarters with support from the PDA Europe Office, lead by Gautam Maitra as well as Giannetto and Baselli from the PDA Italy Chapter.

The course will continue in April, with a module on Quality Systems taught by Dr. Joerg Neuhaus and Dr. Oliver Schlaefli, Head of Quality at Novartis Pharma, Basel and a former Swiss Inspector. Dr. Schlaefli is also an Associate Professor for Pharmaceutical Technology at the University of Tromso, Norway. Additional modules on Advanced Topics, Dosage Forms, Laboratory Issues and Field Operations will be delivered before the end of December 2003.

PDA is honored to be the international organization selected to design and direct the course. Watch the *PDA Letter* for future updates. ■

One of the students, Isabella Marta, presents a lively case study.

Jim Lyda, KMI/PAREXEL International, LLC (standing); and Joerg Neuhaus, German Health Authorities.

Dr. Joerg Neuhaus, German Health Authorities during his presentation.

L–R: Italian Inspectorate Dr. Carlo Pini (his associate to his right); Dr. Carmen Wagner, Strategic Compliance International, Inc.; Joerg Neuhaus, German Health Authorities; Gautam Maitra, PDA Europe.

Upcoming Course Series

PDA-TRI Baltimore Course Series

Wyndham Inner Harbor, Baltimore, MD

May 14–16, 2003

PDA-TRI Lecture Courses:

May 14

Environmental Monitoring in Pharmaceutical Manufacturing

Introduction to Writing and Auditing CGMP Documentation

Annual Product Reviews: How to Comply with FDA & ICH Requirements

May 14–15

Fundamentals of Tableting for Pharmaceutical Scientists

May 14–16

GMP Training Manager Workshop

May 15

Improving Sterile Drug Submissions to the FDA

Beyond the GMP/ISO Basics–Practical Strategies for Everyday Compliance

May 15–16

Pharmaceutical Water Systems: A Practical Approach

May 16

Z1.4 Attribute Inspection Sampling in a CGMP Environment

Maximizing SOPS–An Untapped Resource of Training Solutions

Analytical Problem Solving for CAPA Systems

PDA-TRI Toronto Course Series

Westin Harbour Castle, Toronto, CANADA

June 23–25, 2003

PDA-TRI Lecture Courses:

June 23

Failures/Deviations and Change Control

Achieving CGMP Compliance during Development of a Biotechnology Product

June 23–24

Basic Concepts in Cleaning and Cleaning Validation

Active Pharmaceutical Ingredients: Manufacture & Validation

CGMP & Compliance

June 23–25

Tablet Formulation

June 24

Z1.4 Attribute Inspection Sampling in a CGMP Environment

June 24–25

Knowledge & Skills of the Successful QA/QC Manager in the Pharmaceutical Industry

June 25

Assay Validation

Designing, Monitoring and Validation of Pharmaceutical Manufacturing Ventilation Systems

Radiation Dosimetry & Calibration

Upcoming PDA-TRI Laboratory Education Courses

Courses listed in alphabetical order

Aseptic Processing 2003 Training Program—Lab Option 2: April 7–11, 2003 and May 5–9, 2003; Option 3: August 25–29, 2003 and September 22–26, 2003; Option 4: October 27–31, 2003 and November 17–21, 2003; $7,500 members/$7,695 nonmembers; *Faculty:* John Lindsay and David Matsuhiro SOLD OUT SOLD OUT SOLD OUT

CGMP Trainer's Qualification Program August 11–15, 2003; October 20–24, 2003

Cleaning Validation—Lab May 19–21, 2003; October 13–15, 2003; $3,000 members/$3,195 nonmembers; *Faculty:* Jon Voss and Bob O'Brien

Compliance Auditing of Cleanrooms and Controlled Environments August 14–15, 2003

Ensuring Measurement Integrity in the Validation of Thermal Processes—Lab April 28–29, 2003; November 6–7, 2003; $2,000 members/$2,195 nonmembers; *Faculty:* Göran Bringert

Environmental Mycology Identification Workshop May 15–16, 2003; October 2–3, 2003; December 4–5, 2003; $2,000 members/$2,195 nonmembers; *Faculty:* John Brecker

Fundamentals of D, F, and Z Value Analysis August 21–22, 2003; $2,000 members/$2,195 nonmembers; *Faculty:* John Shirtz ■

These courses will be held at PDA-TRI in Baltimore, MD unless otherwise noted.

For course content information, call PDA-TRI directly at **(410) 455-5800**.

For registration information, call PDA headquarters in Bethesda, MD at **(301) 656-5900**.

PDA-TRI Location/Lodging Information

Unless otherwise noted, PDA Institute courses are held at: PDA Training and Research Institute, 1450 South Rolling Road, Baltimore, MD 21227, Tel: (410) 455-5800; Fax: (410) 455-5802.

PDA has not secured any specific room blocks for participants attending courses at the Training and Research Institute. There are several hotels in the Inner Harbor (downtown Baltimore) and BWI airport areas. These include, but are not limited to:

Baltimore Hilton & Towers Inner Harbor
(410) 539-8400
(410) 625-1060 - fax

Courtyard by Marriott–BWI
(410) 859-8855
(410) 859-5068 – fax

Baltimore Marriott Inner Harbor
(410) 962-0202
(410) 625-7892 - fax

Embassy Suites BWI
(410) 850-0747
(410) 850-0816 – fax

Homewood Suites BWI*
(410) 684-6100
(410) 684-6810 – fax

Holiday Inn Inner Harbor**
(*Special Rates for our course Attendees*)
(410) 685-3500
(410) 727-6169 – fax

Hyatt Regency Baltimore Inner Harbor
(410) 528-1234
(410) 605-2870 – fax

Sheraton International Hotel BWI
(410) 859-3300
(410) 859-0565 - fax

Courtyard Baltimore Downtown/Inner Harbor
(443) 923-4000
(443) 923-9970 – fax

Holiday Inn—BWI***
(410) 859-8400
(410) 684-6778 – fax

* no on-site restaurant

** **A discounted rate** is available for **Holiday Inn Inner Harbor of $99**, to receive this rate call the number above and mention the PDA-TRI Corporate Rate (ID# 100196574) when making your reservations. **Rooms are based on availability**.

*** **A discounted room rate** is also available from the **Holiday Inn—BWI**. You must call the number above and mention the PDA Corporate Rate (3-PDA) when making your reservations.

For additional hotel information, please visit ww.baltconvstr.com, the Baltimore Convention and Visitors Bureau's Web site.

Transportation to PDA-TRI: All listed hotels are no more than a 15–20 minute taxi ride to the Training and Research Institute. All hotels can assist you with taxi arrangements. Registrants may prefer to rent a car for easier access to and from the Institute.

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Good Practice and Compliance for Electronic Records

published jointly with ISPE

Part 1—Good Electronic Records Management (GERM): Electronic Information Assurance for the Regulated Industry—Guide to Current Good Practice for Electronic Records and Signatures What you need to know about positioning regulated establishments for achieving electronic information assurance—the concepts and principles that need to be considered when building, maintaining, managing and transitioning electronic environments—can be found in Good Electronic Records Management (GERM), Part 1 of the PDA–ISPE series on Good Practice and Compliance for Electronic Records and Electronic Signatures. Focusing on requirements and concepts rather than technical implementation details, this resource document is a valuable tool for the architects of electronic records environments. Whether your mission is to define the requirements, policies and procedures or to construct the physical environment, you will find that Good Electronic Records Management (GERM) is a must for your bookshelf. Key elements of the document include: prerequisites; electronic records; organizational controls; operations and infrastructure; transactions; records retention; personnel qualification and training; hybrid systems and controls; legal; glossary; and further reading.

This document was produced through the collaboration of several industry groups (FDA regulated companies, system suppliers, legal experts, and consultants). It represents a compendium of current thinking on good electronic record management from an FDA regulated industry perspective. GERM attempts to present these practices at an abstraction level that is descriptive. The stated practices and concepts are meant to educate the reader when considering options for electronic records management. No endorsement of specific technologies is made, nor are there any specifics that direct a standard for the implementation of concepts. Current thinking on the topics presented means that this compendium is intended to evolve as experience with electronic recordkeeping grows. Application of concepts may require a paradigm shift in some organizations with regard to the treatment of electronic records. Such changes are a conscious business decision and not an intentional prerequisite for implementation of any of the concepts presented. 2002; 104 pages; $95 PDA members/$190 nonmembers **Item No. 19003**

Part 2—Complying with 21 CFR Part 11, Electronic Records and Electronic Signatures This document has been produced by a Special Interest Group of the GAMP Forum (pharmaceutical companies, suppliers, consultants and the Medicines Control Agency in the UK) in order to promote a better understanding of 21 CFR Part 11. It aims to provide industry and its suppliers with practical guidance on how to comply with the rule, while highlighting and addressing common issues of concern. The manuscript provides a management process for achieving and maintaining compliance with 21 CFR Part 11 in manufacturing environments. Specific guidance is provided for both new and existing systems in addition to the role of suppliers in supporting this approach. Appendices provide information, examples, templates, checklists, and a lifecycle for the management of electronic documents that are useful when implementing 21 CFR Part 11 compliance programs. A Glossary and References List are also included.

Part 2—Complying with 21 CFR Part 11, Electronic Records and Electronic Signatures; 80 pages; $95 members/$190 nonmembers
Item 19001 (English)

Part 2—Complying with 21 CFR Part 11, Electronic Records and Electronic Signatures; 80 pages, $95 PDA members/$190 nonmembers
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Part 2—Complying with 21 CFR Part 11, Electronic Records and Electronic Signatures; 80 pages, $95 PDA members/$190 nonmembers
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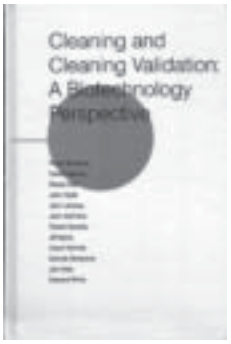

Cleaning & Cleaning Validation: A Biotechnology Perspective Authors: Roger Brunkow, David DeLucia, George Green, Shane Haft, John Hyde, John Lindsay, Jill Myers, Robert Murphy, John McEntire, Karen Nichols, Ray Prasad, Brenda Terranova, Jon Voss, Caroline Weil, Edward White; This book is intended to serve as a source of practical technical information for those persons in the biotechnology industry. Case studies and/or actual industry examples are used to support the text wherever possible. While much of the material contained within this text is equally applicable to non-biopharmaceutical processes, the emphasis has been focused directly upon biopharmaceutical manufacturing. Section I provides an in-depth analysis of the design concepts that lead to cleanable equipment. Also covered are cleaning mechanisms and cleaning systems. The first section is particularly useful to those persons faced with the task of designing systems that will be cleaned and also provides the biochemical background of the mechanisms associated with the removal of common biotechnology soils. Section II focuses on cleaning validation concepts. While the material is equally useful for single product cleaning, emphasis is placed upon multi-product cleaning validation. Included are general validation principles as they apply to cleaning validation, a detailed analysis of cleaning process validation, sampling techniques, analytical methods and acceptance criteria. The material in Section II will be useful to anyone responsible for the development of a cleaning validation program. Section III provides an overview of multi-product biotechnology manufacturing procedures. Included is an analysis of the risk to benefit scenarios associated with the various forms of product manufacturing, an analysis of changeover programs, and equipment considerations and material transport as they are affected by multi-product manufacturing strategies. 1995; 190 pages; $125 members/$145 nonmembers **Item 13002**

Books from PDA-DHI Press

Change Control Soren Schwartz; This manual provides a well-organized, practical process for the management of changes to the Information and Control Systems used in GxP-related operations. 25 pp; $90members/$109 nonmembers **Item 17189**

Commercial Off-The-Shelf Software Validation for 21 CFR Part 11 David Netleton and Janet Gough; Validation clearly is a requirement for regulatory compliance. Every indication is that the regulations will focus more and more on electronic generation of data, data control, and data transfer. The goal of this book is to provide guidance for validating commercial, off-the-shelf (COTS) computer software that generates data or controls information about products and processes subject to binding regulations. Drawing upon the authors' extensive 21 CFR Part 11 experience, this book offers a systematic approach to validation, from the determination to validate COTS computer software to assessing the outcome of the process. It also tells what measures companies must take to ensure that systems remain compliant with the binding regulations. It is designed to help readers save countless hours and dollars in pursuit of compliance. Making the transition from manual record keeping to the electronic, paperless arena is not effortless. This book provides the practical information needed to ensure understanding of the FDA issued guidance as they develop systems that will enable them to go partially or fully electronic. Intrinsic in the FDA guidance is that electronic systems that control the research, development, manufacturing, packaging, and distribution of products undergo validation and here is the information you need to proceed with confidence. Hardcover; 130 pp; $229.00 **Item No. 17200**

Electronic Records and Electronic Signatures Compliance Assessment Chris Reid and Barbara Mullendore; *ERES* provides practical guidance on the interpretation of 21CFR Part 11 and the steps you need to take to address current and future compliance issues. 58 pp; $90 members/$109 nonmembers **Item 17177**

External Quality Audit, The Janet Gough and Monica Grimaldi; This book will help you to effectively evaluate suppliers to determine reliability, quality and value. 100 pp; $120 members/$149 nonmembers **Item 17180**

Filtration Handbook—Integrity Testing Maik W. Jornitz and Theodore H. Meltzer; This complete guide explains the proper performance of filter integrity testing by clarifying its relationship to bioburden concerns and assessing its role in filter validation. It offers practical approaches to the appropriate use of integrity testing, wetting and temperature requirements, the Bubble Point test, diffusive airflow testing and much more. Numerous regulatory citations and references complete this invaluable book. 150 pp; $185 members/$229 nonmembers **Item 17197**

GMP in Practice: Regulatory Expectations for the Pharmaceutical Industry, 3rd edition James Vesper; A quick guide to GMP, designed to simplify and enhance understanding of most of the current GMP expectations and how they apply to ongoing tasks in any given pharmaceutical manufacturing situation. 224 pp; $105 members/$129 nonmembers **Item 17199**

Hosting a Compliance Inspection Janet Gough; This is the guidance you need to host a compliance inspection. 106 pp; $120 members/$149 nonmembers **Item 17192**

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Introduction to Environmental Monitoring in Pharmaceutical Areas Michael Jahnke; Topics discussed include all aspects of cleanrooms, air handling systems, HAACP and risk analysis along with numerous useful charts, tables and figures. 104 pp; $90 members/$109 nonmembers **Item 17182**

Laboratory Systems Validation Testing and Practice Paul Coombes; This book aims to provide advice on the thinking and practice found to be successful and valuable in the validation of laboratory systems used in the pharmaceutical and related industries. 113 pp; $120 members/$149 nonmembers **Item 17196**

Media Fill Validation Environmental Monitoring During Aseptic Processing Michael Jahnke; The second in this series of four books. This edition provides current, practical techniques that focus on considerations in the preparation and monitoring of aseptic manufacturing, taking into account the national and international requirements, and guidelines concerning the validation of aseptic processing. Topics include: Risk analysis, HAACP, Documentation and qualification; Qualification and training of personnel; Scope of validation; Overall requirements; Release requirements; Documentation; and Authorization. The guide also includes an excellent Manufacturing and Testing Master Batch Record, and 25 extremely valuable charts, graphs, and figures. 108 pp; $90 members/$109 nonmembers **Item 17181**

Microbiological Monitoring of Pharmaceutical Process Water Michael Jahnke; This Quick Guide discusses effective microbiological monitoring strategies for testing the quality of process water used in the pharmaceutical industry. 70 pp; $90 members/$109 nonmembers **Item 17193**

Microbiological Risk Assessment in Pharmaceutical Clean Rooms Bengt Ljungqvist and Berit Reinmuller; This monograph clearly explains the Limitation of Risk Method (LR-Method). 17 pp; $75 members/$90 nonmembers **Item 17175**

Microbiology in Pharmaceutical Manufacturing Richard Prince, Editor; Providing valuable knowledge for the novice and the expert alike, many of the world's greatest pharmaceutical microbiologists and engineers, as well as other thought leaders, have invested their considerable talents and prestige in developing this comprehensive collection of timely information on this critically important subject. This book encapsulates current knowledge in a truly wide array of microbiological applications for the reader. It is hoped that this

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Books from PDA-DHI Press *(continued)*

book will demystify the field of microbiology by describing it plainly and systematically from various scientific, technical, and functional perspectives. 900 pp; $240 members/$299 nonmembers **Item 17185**

Practical Change Control for Health Care Manufacturers Angie Jamison; Quick Guide. 124 pp; $120 members/$149 nonmembers **Item 17173**

Quality Control Systems for the Microbiology Laboratory: The Key to Successful Inspections Lucia Clontz; Addresses the main quality control systems that should be implemented in a microbiology laboratory with a focus on current issues and inspection trends. 175 pp; $135 members/$169 nonmembers **Item 17176**

Steam Sterilization—A Practitioner's Guide Jeanne Moldenhauer, Editor; Contains pragmatic details on how to accomplish the tasks necessary for a sterility assurance program for steam sterilization processes. Each chapter author is a subject matter expert and has a minimum of 10 years of hands-on experience in the topics discussed. The authors use this experience to identify practical ways to perform research, development, validation, and production activities associated with steam sterilization. Many of the chapters include sample standard procedures or protocols that may be used as templates to generate documents for your facility. Other chapters outline and explain the requirements. The book also provides guidance for those individuals who are responsible for the oversight of these processes or those who wish to update their knowledge. While written primarily for the pharmaceutical industry, much of the content may be applicable to the food and cosmetic industries as well. While this book does not specifically address the bulk drug industry, certain information may be applicable to bulk drug manufacturers. Whether your organization is small or large, this book contains insights and techniques that will prove invaluable in your effort to develop and maintain a sterility assurance program for steam sterilization processes. 740 pp; $215 members/$269 nonmembers **Item 17183**

Understanding Active Pharmaceutical Ingredients Seigfried Schmitt; Written by a Chartered Chemist and Member of the Royal Society of Chemistry, and edited by Trevor Deeks, this succinct document provides an overview of API use, including regulatory and validation details. 44 pp; $80 members/$109 nonmembers **Item 17188**

Understanding GMP: A Practical Guide Martyn Becker; This ex-MCA inspector, now at Merck, shares his expertise and perspectives on GMP regulations, legislation, applications, and practical challenges and solutions to applying GMP to the manufacturing environment. 237 pp; $130 member/$159 nonmember **Item 17174**

Selected PDA Technical Reports

TR 36 Current Practices in the Validation of Aseptic Processing—2001; The validation of aseptic processing continues to be a major area of interest within the pharmaceutical industry. Five years have passed since the last PDA survey on this subject. While there have been no new broadly applicable regulations or regulatory guidance since that time, there has been continued controversy over the details of aseptic processing and process simulation practice. Industry practices largely adhere to current regulations and guidelines on aseptic processing by the European Union, ISO, and FDA. The impact of PDA's TR 22: Process Simulation Testing for Aseptically Filled Products, is also apparent. Over time industry methods, practices and limits have been modified to adapt to the changing circumstances. The Pharmaceutical Manufacturers Association (now PhRMA) in 1979 and PDA in 1986, 1992 and 1996 conducted surveys on this subject that have provided a clearer understanding of contemporary industry practice. This survey addresses the continuing need to track industry practice in the validation of aseptic processing as it evolves. Questionnaires were sent to 88 firms that specifically agreed to participate with PDA in this effort. Forty-three responses were received representing both US and overseas locations. The results were tabulated to provide both raw numerical and a percentage of total respondents. The respondents provided comments, either solicited or voluntarily, after the question. Where more than one respondent provided essentially the same response selection and comment, they have been consolidated and a number appears next to the response indicating the number of comments of that type. The nature and extent of the comments received were extensive, and for this reason the authors have chosen to combine similar responses. One of the major benefits of surveying on a regular basis is the opportunity to follow the evolution of concepts and practices over time. To that end, this survey instrument used many questions that were nearly identical to those asked in 1992 and 1996. 2001; 34 pages; $75 members/$125 nonmembers. **Item No. 01036**

TR 35 A Proposed Training Model for the Microbiological Function in the Pharmaceutical Industry; Many firms today have separate departments with different training requirements. Employees associated with the Microbiological Function do not always receive consistent training. This can lead to varying microbiological control practices within a manufacturing facility. This Technical Report was produced by the PDA Subcommittee on Microbiology Training, formed in January 2001, to develop an industry vision and guidance for instituting a step-wise, competency-based training program for microbiologi-

Selected PDA Technical Reports *(continued)*

cal training of individuals engaged in work activities connected to contamination control and microbiological testing of pharmaceutical articles. 2001; 24 pages; $75 members/$125 nonmembers. **Item No. 01035**

TR 34 Design and Validation of Isolator Systems for the Manufacturing and Testing of Health Care Products; This technical report addresses essential user requirements for the application of isolator technology to a broad range of manufacturing, development and testing applications in the health care product manufacturing industry. It covers not only product sterility assurance, but also the use of isolators for the containment of hazardous materials. 2001; 25 pages; $75 member/$125 nonmember. **Item No. 01034**

TR 13 Revised Fundamentals of an Environmental Monitoring Program; The purpose of this document is to identify microbiological and particulate control concepts and principles as they relate to the manufacture of sterile pharmaceutical products. It expands substantially upon the first edition of Technical Report No. 13 (Revised), *Fundamentals of a Microbiological Environmental Monitoring Program*, published by PDA in 1990. While this publication cannot possibly supplant the wealth of information published on this subject, it provides summary information and appropriate references for the reader to consult, if necessary. The objective was to contemporize the first edition through the utilization of current definitions, recognition of improved environmental monitoring procedures, and equipment. This document serves as a source on clean room environmental test methods, and although some non-viable particulate and endotoxin testing data are included, its primary focus is microbiological control. The concepts for sterile product manufacturing are the most stringent application, but these concepts can also be applied to non-sterile product manufacture. The focus is environmental monitoring as it relates to facility control and compliance. This document was compiled to aid in setting up a program that is meaningful, manageable, and defendable. 2001; 37 pages; $75 member/$125 nonmember. **Item No. 01013**

TR 33 Evaluation, Validation and Implementation of New Microbiological Testing Methods; This report is intended to provide a general approach to the introduction of new microbiology methods in a government-regulated environment. It is also intended to provide guidance for the successful evaluation, validation and implementation of new microbiological methods needed by the pharmaceutical, biotechnology and medical device industries to assure product quality. These new methodologies offer significant improvements in terms of the speed, accuracy, precision and specificity with which testing can be performed. 2000; 37 pp; $75 members/$125 nonmembers. **Item No. 01033**

TR 32 Auditing of Suppliers Providing Computer Products and Services for Regulated Pharmaceutical Operations; Developed in response to an FDA challenge to develop a standard way to assess the structural integrity of acquired software, TR 32 was written by the PDA Supplier Auditing and Qualification Task Group (SA&Q), which included pharmaceutical companies, suppliers, auditors and FDA members who used their experiences with supplier audits and performed research to draft a common practice to satisfy industry needs. The scope of the project included audits of computer products and services and describes how the SA&Q Task Group, led by George J. Grigonis, Jr., Merck and Co., Inc., developed and tested a Process Model and Data Collection Tool. Use of these tools will provide consistent audit information that can be shared within the industry. December 1999; 277 pp; $90 members/$140 nonmembers (paper copy; **Item No. 01032**); **CD**—$50 members/$75 nonmembers (CD-ROM format; **Item No. 01132**).

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For a complete PDA Calendar beyond November 2003, please visit **www.pda.org**.

2003 Calendar from back cover

AUGUST

August 11–15, 2003
PDA-TRI Lecture Course: ***CGMP Trainer's Qualification Program***
PDA-TRI Baltimore, MD

August 14–15, 2003
PDA-TRI Lecture Course: ***Compliance Auditing of Cleanrooms and Controlled Environments***
PDA-TRI Baltimore, MD

August 19–21, 2003
PDA-TRI San Francisco Course Series
The Fairmont, San Francisco, CA
PDA-TRI Lecture Courses:
August 19
GMP Fundamentals
August 19–20
Sterile Pharmaceutical Dosage Forms: Basic Principles
Computer-Related Systems Validation
CGMP & Compliance
August 19–21
Introduction to Competency Based Training
August 20
Managing in a GMP Environment
August 21
Good Documentation Practices in the Pharmaceutical Industry
Analytical Problem Solving for CAPA Systems
Annual Product Reviews: How to Comply with FDA & ICH Requirements

August 21–22, 2003
PDA-TRI Laboratory Course: ***Fundamentals of D, F, and Z Value Analysis***
PDA-TRI Baltimore, MD

August 25–29, 2003—**SOLD OUT!**
PDA-TRI Laboratory Course: ***Aseptic Processing Training Program—Week 1***
PDA-TRI Baltimore, MD

SEPTEMBER

September 3, 2003
UK & Ireland Chapter Meeting ***Training Strategies***
Royal Pharmaceutical Society, UK

September 8–12, 2003
2003 PDA/FDA Joint Regulatory Conference, Courses and Tabletop Exhibits ***Navigating Current GMPs: Catch the Compliance Wave***
Conference: September 8–10
Courses: September 11–12
Tabletop Exhibits: September 8–9
Omni Shoreham Hotel, Washington, DC
PDA-TRI Lecture Courses:
September 11
Biopharmaceutical QA/QC for Senior Management
September 11–12
Cleanroom Management
CGMP & Compliance
Preparing for an FDA Pre-Approval Inspection
Validation of Sterilization Processes
September 12
Application of CIP to the Pharmaceutical Process

September 22–26, 2003—**SOLD OUT!**
PDA-TRI Laboratory Course: ***Aseptic Processing Training Program—Week 2***
PDA-TRI Baltimore, MD

September 24–25, 2003
UK & Ireland Chapter Meeting ***What to Do When Things Go Wrong***
Britannia International, Canary Wharf, London, UK

September 29, 2003
PDA Presents ***Basel Pharmaceutical Forums***
UBS Ausbildungs-und Konferenzzentrum, Basel, SWITZERLAND

September 30–October 1, 2003
PDA-TRI Lecture Course: ***PDA Computer Products Supplier Auditor Process Model: Auditor Training***
PDA-TRI Baltimore, MD

OCTOBER

October 2–3, 2003
PDA-TRI Laboratory Course: ***Environmental Mycology Identification Workshop***
PDA-TRI Baltimore, MD

October 13–15, 2003
PDA-TRI Laboratory Course: ***Cleaning Validation***
PDA-TRI Baltimore, MD

October 20–22, 2003
PDA-TRI Boston Course Series
Radisson Hotel Boston, Boston, MA
PDA-TRI Lecture Courses:
October 20
Beyond the GMP/ISO Basics–Practical Strategies for Everyday Compliance
Bioassay Development & Validation
October 20–21
Parenteral Packaging: Rubber, Glass, Plastic and Metal Seals
Everything you Wanted to Know about Environmental Monitoring, but were Afraid to Ask
October 20–22
GMP Training Manager Workshop
October 21
Maximizing SOPs–An Untapped Resource of Training
Assay Validation
October 22
Achieving CGMP Compliance during Development of a Biotechnology Product
Z1.4 Attribute Inspection Sampling in a CGMP Environment
Analytical Problem Solving for CAPA Systems
Annual Product Reviews: How to Comply with FDA & ICH Requirements

October 20–24, 2003
PDA-TRI Lecture Course: ***CGMP Trainer's Qualification Program***
PDA-TRI Baltimore, MD

October 27–31, 2003—**SOLD OUT!**
PDA-TRI Laboratory Course: ***Aseptic Processing Training Program—Week 1***
PDA-TRI Baltimore, MD

NOVEMBER

November 6–7, 2003
PDA-TRI Laboratory Course: ***Ensuring Measurement Integrity in the Validation of Thermal Processes***
PDA-TRI Baltimore, MD

November 10–14, 2003
2003 PDA Annual Meeting, Courses and Exhibition
Annual Meeting: November 10–12
Courses: November 13–14
Exhibition: November 10–11
Hilton Atlanta, Atlanta, GA
PDA-TRI Lecture Courses:
November 13
Designing, Monitoring & Validation of Pharmaceutical Manufacturing Ventilation Systems
Auditing Techniques for CGMP Compliance
November 13–14
Basic Concepts in Cleaning and Cleaning Validation
Computer-Related Systems Validation
A Practical Approach to Aseptic Processing and Contamination Control
November 14
Managing in a GMP Environment
Change Control & Documentation

Information on these conferences and courses will be posted on the PDA Web site as they become available.

Visit often to get the latest information!

www.pda.org

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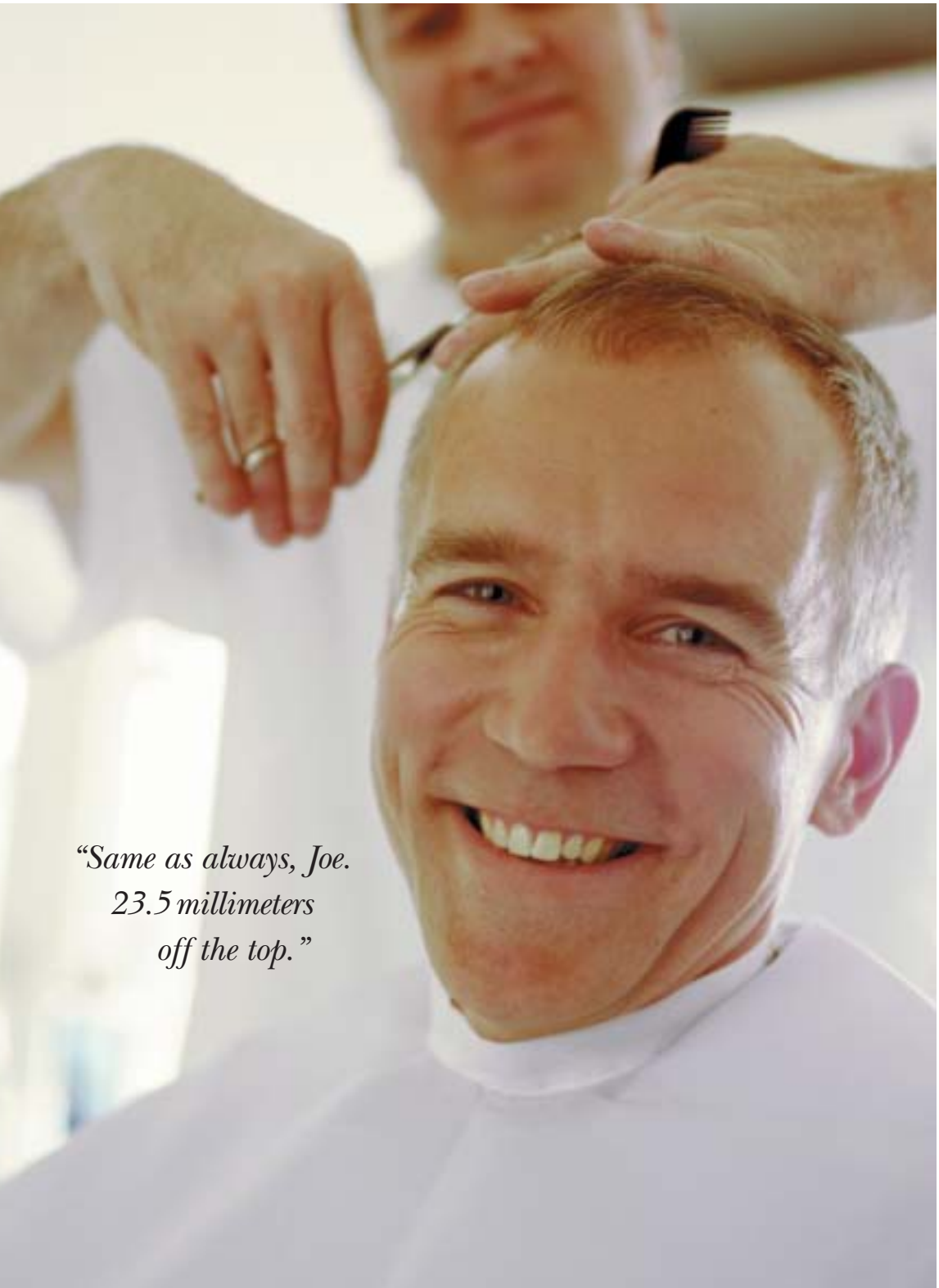

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Calendar of Events

APRIL

April 28–29, 2003
PDA-TRI Laboratory Course: ***Ensuring Measurement Integrity in the Validation of Thermal Processes***
PDA-TRI Baltimore, MD

MAY

May 4–7, 2003
PDA Good Electronic Records Management Conference
Achieving FDA Part 11 Compliance with GERM
Conference: May 5–7
Courses/Tutorials: May 4
Westin Hotel, Chicago, IL
Pre-Conference Courses/Tutorials:
May 4
Electronic Records Management on Trial Managing Electronic Records: A Practical Approach
What is Part 11?
Digital Preservation; Examination of Migration and Emulation Options

May 5–9, 2003
2003 PDA International Congress, Courses and Tabletop Exhibits
Congress: May 7–9
Courses: May 5–7
Tabletop Exhibits: May 7–8
The Ritz Carlton Millenia, Singapore, SINGAPORE
PDA-TRI Lecture Courses:
May 5–6
A Practical Approach to Aseptic Processing and Contamination Control
Basic Concepts in Cleaning and Cleaning Validation
Active Pharmaceutical Ingredients: Manufacture & Validation
May 5–7
Requirements and Preparation of Pharmaceutical Grade Waters

May 5–9, 2003—**SOLD OUT!**
PDA-TRI Laboratory Course: ***Aseptic Processing Training Program—Week 2***
PDA-TRI Baltimore, MD

May 12–14, 2003
ICH Q7A Training Workshop ***Good Manufacturing Practice Guidance for Active Pharmaceutical Ingredients***
Komaba Eminence Hall, Oohashi 2-19-5, Meguro-ku
Tokyo, JAPAN

May 14–16, 2003
PDA-TRI Baltimore Course Series
Wyndham Inner Harbor, Baltimore, MD
PDA-TRI Lecture Courses:
May 14
Environmental Monitoring in Pharmaceutical Manufacturing
Introduction to Writing and Auditing CGMP Documentation
Annual Product Reviews: How to Comply with FDA & ICH Requirements
May 14–15
Fundamentals of Tableting for Pharmaceutical Scientists
May 14–16
GMP Training Manager Workshop
May 15
Improving Sterile Drug Submissions to the FDA
Beyond the GMP/ISO Basics–Practical Strategies for Everyday Compliance
May 15–16
Pharmaceutical Water Systems: A Practical Approach
May 16
Z1.4 Attribute Inspection Sampling in a CGMP Environment
Maximizing SOPS–An Untapped Resource of Training Solutions
Analytical Problem Solving for CAPA Systems

May 15–16, 2003
PDA-TRI Laboratory Course: ***Environmental Mycology Identification Workshop***
PDA-TRI Baltimore, MD

May 19–20, 2003
PDA Puerto Rico Conference on Current Issues in Pharmaceutical Manufacturing
Inter-Continental Hotel, San Juan, Puerto Rico

May 19–21, 2003
PDA-TRI Laboratory Course: ***Cleaning Validation***
PDA-TRI Baltimore, MD

May 22, 2003
UK & Ireland Chapter Meeting ***Directive 2001//20/EC and Annex 13***
Britannia International, Canary Wharf, London, UK

JUNE

June 6, 2003
PDA Southeast Chapter Golf Outing
Location TBA

June 9–10, 2003
PDA Canada Conference on Current Issues in Pharmaceutical Manufacturing
Hyatt Vancouver, Vancouver, British Columbia

June 23–25, 2003
PDA-TRI Toronto Course Series
Westin Harbour Castle, Toronto, CANADA
PDA-TRI Lecture Courses:
June 23
Failures/Deviations and Change Control
Achieving CGMP Compliance during Development of a Biotechnology Product
June 23–24
Basic Concepts in Cleaning and Cleaning Validation
Active Pharmaceutical Ingredients: Manufacture & Validation
CGMP & Compliance
June 23–25
Tablet Formulation
June 24
Z1.4 Attribute Inspection Sampling in a CGMP Environment
June 24–25
Knowledge & Skills of the Successful QA/QC Manager in the Pharmaceutical Industry
June 25
Assay Validation
Designing, Monitoring and Validation of Pharmaceutical Manufacturing Ventilation Systems
Radiation Dosimetry & Calibration

June 23–27, 2003
PDA Italy Chapter Presents ***Sterile Manufacturing Practices in the Third Millennium: A Regulatory and Industry Perspective***
Melia Milano Hotel, Milan, ITALY
Conference: June 23–25
Course: June 25–27
PDA-TRI Lecture Course:
June 25–27
Design, Engineering and Validation of Isolators for Pharmaceutical Applications

June 30, 2003
PDA Presents ***Basel Pharmaceutical Forums***
UBS Ausbildungs-und Konferenzzentrum, Basel, SWITZERLAND

JULY

July 15–16, 2003
PDA-TRI Lecture Course:
PDA Computer Products Supplier Auditor Process Model: Auditor Training
PDA-TRI Baltimore, MD

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Be sure to watch
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for conference and course updates!