

# Quality and Statistics:

## Total Quality Management

Milton J. Kowalewski, Jr.  
editor



STP 1209

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# ***Quality and Statistics: Total Quality Management***

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ASTM Publication Code Number (PCN):  
04-012090-34



ASTM  
1916 Race Street  
Philadelphia, PA 19103  
Printed in the U.S.A.

## **Library of Congress Cataloging-in-Publication Data**

Quality and statistics: total quality management/Milton J.

Kowalewski, Jr., editor.

(STP 1209)

Includes bibliographical references and index.

ISBN 0-8031-1872-4

1. Quality control—Statistical methods. 2. Total quality management. 3. Process control—Statistical methods.

I. Kowalewski, Milton J., 1994—

II. Series: ASTM special technical publication: 1209.

TS156.Q3Q292 1994

658.5'62—dc20

94-29563

CIP

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Each paper published in this volume was evaluated by three peer reviewers. The authors addressed all of the reviewers' comments to the satisfaction of both the technical editor(s) and the ASTM Committee on Publications.

To make technical information available as quickly as possible, the peer-reviewed papers in this publication were printed "camera-ready" as submitted by the authors.

The quality of the papers in this publication reflects not only the obvious efforts of the authors and the technical editor(s), but also the work of these peer reviewers. The ASTM Committee on Publications acknowledges with appreciation their dedication and contribution to time and effort on behalf of ASTM.

## Foreword

This publication, *Quality and Statistics: Total Quality Management*, contains papers presented at the symposium of the same name held in Atlanta, GA on 4–5 May, 1993. The symposium was sponsored by ASTM Committee E-11 on Quality and Statistics. Milton J. Kowalewski, Jr., of E G & G Rocky Flats, Inc. in Golden, CO presided as symposium chairman and is also the editor of the resulting publication.

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# Overview

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It was a warm and balmy time in Atlanta where 16 total quality individuals presented their dreams, messages, and stories to ASTM members and friends. Dorothy Savini and Scott Orthey provided a warm Atlanta welcome and southern style food in addition to their incomparable planning and coordination success. Nancy Trahey, the ASTM Chairman of the Board opened the E11 Symposium by awarding the ASTM Award of Merit and Fellow recognition to Dr. Ricardo Stone for his contributions and persistence. She was followed by E11 Chairman, Duncan McCune, who presented the Harold F. Dodge Award to Dr. Edward G. Schilling for reflecting the spirit and integrity of his late graduate advisor, Dr. Dodge.

These exciting award presentations set the stage for the 2 day marathon of presentations on Total Quality Management in standardization. Kumar-Misir opened the 16 paper series by describing his global-ready business model. His presentation was both informative and appropriate. Zott followed by telling the International Standards Organization (ISO) registration story as it relates to Underwriter's Laboratories (UL) in the United States and other accreditation bodies worldwide. Vardys set the foundation for the following 13 speakers by emphasizing the necessity to plan, control, and prepare documentation systems.

Locke, President of the American Association for Laboratory Accreditation (A2LA), opened the technical section of the morning by sharing his case-study of statistical measurement control for the evaluation of laboratory test results of automobile parts. Octogenarian, Daly, showed us the importance of formal design review, failure mode effects analysis (FMEA), and fault tree analysis (FTA) procedures. He was followed by Tulay who explained the Energy Program Research Institute (EPRI) guide for sampling procured items for the nuclear industry.

Since Mandel was visiting his homeland overseas, McCune aptly read and interpreted Dr. Mandel's paper on the ASTM Guide for Interlaboratory Studies (E 691) and its computer software capabilities. An additional step for enhancing the application of the standard was proposed for use. Lindow closed day one with examples of construction projects where Total Quality Control (TQC) was not used and should have been used.

Day 2 was opened by McCune and Levine presenting the do's and don'ts of control charts. They were followed by Moyer who shared the frustrations and need for quality standards in the manufacture of magnetic products that were identified as functional throughout our homes and automobiles. His interlaboratory study revealed startling results. He was followed by Schilling's transitional paper and easy to apply ABC plan for initiating, establishing, and maintaining both capability and control of processes.

Farrar and yours truly, the symposium chairman, lightened up the morning in preparation for lunch with a philosophical and practical combination of organizational frames and TQM in a road design agency. Bernstein helped us digest lunch by his after meal tour through the "belly" of the chemistry lab at Bridgeport Hospital in Massachusetts. Winding down the last quarter of the marathon of papers on day 2 was Yeung speaking on the results of surveys and quality assurance systems designed for small clothing establishments in Hong Kong where the expectation of the return to Chinese rule in 1997 has retarded the development of quality systems.

Lau spoke about the advantages of continuous process flow analyzers in the Canadian oil industry, and Ping paved the way for us to understand a research project conducted on

Texas highways.

My personal thanks are due the ASTM staff, the speakers, each of the authors, the superb service of the Hyatt Regency Hotel, the ASTM manager of Acquisitions and Review, Kathy Dernoga, for this special collection of leading edge information in the sciences of quality, statistics, and Total Quality Management.

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ISBN 0-8031-1872-4