BOOK REVIEW

HRSG Users Handbook a valuable resource

520 pages, 6 x 9 in., hard cover, $345, order online at www.HRSGusers.org

The knowledge base for proper design, operation, and maintenance of that special class of power boilers known as heat-recovery steam generators (HRSGs) essentially resides in the minds of a thousand or so engineers. Surprising as it may seem, relatively little generic information on the subject has been compiled in print and in the electronic domain.

Every HRSG manufacturer certainly provides each customer "instructions for operation and maintenance" of the particular unit purchased and conducts sufficient classroom training to safely start up, run, and shut down the boiler. That information is valuable, of course, but it doesn't get you very far. Think of college education as an analogy: It provides the basics and a sense of what your chosen field is all about, but you really do not gain knowledge and perspective until you work diligently at something for a long time—hopefully under the direction of an experienced mentor.

HRSGs are almost a forgotten child of an electric power industry transitioning from a regulated market to a competitive one, where *real* knowledge is the key to profitability. An interesting result of this paradigm shift has been the birth and development of user groups in the gas-turbine (GT) sector of the industry, each focusing on a specific engine model. These ad hoc groups were born of necessity—confederations of like-minded people striving to develop a viable methodology for producing reliable, efficient, and virtually pollution-free electrical energy.

The HRSG User's Group was founded in 1993 to help participants solve problems associated with the steam-cycle portion of GT-based combined-cycle and cogeneration plants. It is unique among user groups serving this sector of the market in that all conference and workshop sessions are open to users, consultants, and manufacturers alike—not just users. The benefit of this format is that it provides the broadest possible perspective and experience base.

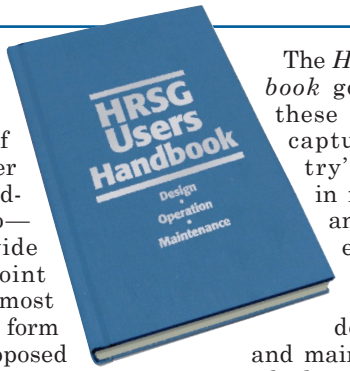
The HRSG User's Group also is unique in terms of "deliverables." The GT user groups publish no "proceedings"—written or audio—although some may provide copies of vendor PowerPoint presentations. And since most of the interchange is in the form of verbal discussion, as opposed to prepared presentations, you return to your plant only with what's in your head and notebook.

By contrast, the in-depth content of HRSG User's Group conferences is captured by a veteran plant manager/experienced industry editor and provided to each attendee as part of his or her registration fee. Typical reports are 50 pages or more.

Content easy to digest

Here's a chapter-by-chapter preview of the information you'll find in the *HRSG Users Handbook,* which was written to be understood:

1. **Operational safety.**
2. **HRSG design**, with subchapters on writing specifications and on vertical and small boilers.
3. **Commissioning and initial startup,** including steam-system cleaning and initial performance testing.
4. **Steam system operation** has subchapters on best practices, steam bypass systems, duct burner operation, attemperators.
5. **Performance monitoring** of the HRSG and of the steam turbine and condenser.
6. **Water treatment** has subsections on HRSG failure mechanisms, makeup water treatment, steam-cycle chemistry, HRSG layup, cooling-water treatment, and water-chemistry automation.
7. **Emissions control and CEMS.**
8. **Maintenance program development.**
9. **HRSG maintenance** including standard practices, how to find and fix tube leaks, welding tube-to-header joints, NDE tools, special maintenance practices.
10. **Piping systems,** including the basics and special piping.
11. **Valve maintenance.**
12. **Ductwork, dampers, and stacks.**
13. **Duct-burner maintenance.**
14. **Instrumentation and controls.**
15. **Plant staffing, organization.**
16. **Failure analysis.**
17. **Outage management.**



The *HRSG Users Handbook* goes well beyond these meeting reports, capturing the industry's best thinking in far greater depth and clarity, thereby establishing itself as an invaluable guide to the design, operation, and maintenance of heat-recovery boilers. The information presented has never been compiled previously in such detail and made available at an affordable price. To provide some perspective on the unique nature of this work, consider that the recently issued 41st edition of the revered *Steam,* published by The Babcock & Wilcox Co, contains nine pounds worth of boiler engineering know-how between its covers but devotes only two pages to HRSGs.

There is no doubt in my mind that the *HRSG Users Handbook* will achieve "bible" status within the combined-cycle/cogen community. Its content is based on sound engineering principles and lessons learned—often painfully. The various chapter authors are experts in their respective fields who have participated in HRSG User's Group meetings and know first-hand the information needed to achieve operational excellence and a sound balance sheet in the merchant power business.

The contributors were handpicked by Rob Swanekamp, arguably the most technically grounded editor in the power industry today. Swanekamp, like his handbook, is unique. He is a visionary and tireless worker, a registered professional engineer with nearly two decades of hands-on powerplant management experience who trained himself to become an excellent communicator in both the spoken and written word. Proof of the latter is his rapid ascension to chief editor of Power magazine in a brief career at McGraw-Hill. Today, Swanekamp is the executive director of the HRSG User's Group; he has been directly involved in the organization's activities for nearly all of its 14 years.

HRSG Users Handbook should be required reading for all who manage or operate a GT-based combined-cycle or cogeneration plant. It is a foundation upon which all HRSG users can build more reliable and efficient generating facilities.

BOB SCHWIEGER
Editor and Publisher
COMBINED CYCLE Journal