Gary F. Bennett *
The University of Toledo, Department of Chemical and Environmental Engineering, Mail Stop 305, Toledo, OH 43606-3390, United States

* Tel.: +1 419 531 1322; fax: +1 419 530 8086.
E-mail address: gbennett@eng.utoledo.edu

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R.W. Crites, E.J. Middlebrooks, S.C. Reed, Natural Wastewater Treatment Systems, CRC/Taylor & Francis, Boca Raton, FL, 2006 (572 pp., USD 169.95, ISBN 0-8493-3804-2).

The importance of this book is well illustrated by the following comment in its preface: "Natural systems for the treatment and management of municipal and industrial wastewaters and residuals feature processes that use minimal energy and minimal or no chemicals, and they produce relatively lower amounts of residual solids."

The processes described in this book are ones ". . .designed to utilize natural responses to the maximum possible degree. . ." in order to attain the intended wastewater treatment goal.

Natural treatment systems for effective wastewater treatment fall into three major categories:

- aquatic treatment units (oxidation ponds, facultative ponds, partial-mix aerated ponds, storage and controlled-discharge ponds, and hyacinth ponds);
- wetland treatment units (natural marshes and constructed wetlands);
- terrestrial treatment units (slow rate, soil aquifer treatment, overland flow, and on-site).

Since I have done research on sludge management, I was particularly interested in the chapter on that topic (Chapter 9). Like the rest of the book, it is comprehensively written and illustrated by the subsection titles used in the chapter. They are as follows:

- sludge quantity and characteristics,
- stabilization and dewatering,
- sludge freezing,
- reed beds,
- vermistabilization,
- comparison of bed-type operations,
- composting,
- land application of disposal solids.

Although not extensively treated, the authors do discuss the content and impact of heavy metals in sewage sludge (my research area). In this discussion, they cite the loading rates found in 40CFR Part 503, which contains the US EPA standards for the use or disposal of sewage sludge.

Throughout the book, the authors combine theory and practice well. Process description equations are developed well with the underlying theory discussed and several excellent examples of their use given. To illustrate the comprehensive treatment, I will include the material from Chapter 4, "Design of Wastewater Pond Systems." Discussed are:

- facultative ponds (areal loading rate method, Gloyna method, complete-mix model, plug-mix model, and Whener–Willhelm equation);
- partial-mix ponds (design model, pond configuration, and mixing and aeration);
- complete-mix aerated pond systems (design equations, pond configuration, and mixing and aeration);
- anaerobic ponds;
- controlled discharge pond systems;
- complete retention pond system;
- hydrograph controlled system;
- hydrograph controlled release;
- high-performance aerated pond systems (Rich design);
- proprietary systems (advanced integrated wastewater pond systems and BIOLAC system);
- LEMNA systems.

This chapter contains a wealth of information about the above-noted treatment systems.

While the book appears to have been written for practicing engineers it would, in my opinion, be an excellent textbook for graduate students (but that use would be enhanced if student problems were included). The text is both theoretical and explanatory. Design equations are included and explained well. Numerous design examples (the book cover says there are 30) based on the theory presented in the book are included. Much data (there are 178 tables) and graphs are included in the book.

My overall assessment is that this is an excellent addition to the literature. It will be the standard in the field for years to come.

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Department of Chemical and Environmental Engineering, University of Toledo, Mail Stop 305, Toledo, OH 43606-3390, United States

* Tel.: +1 419 531 1322; fax: +1 419 530 8086.
E-mail address: gbennett@eng.utoledo.edu

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D. Hendricks, Water Treatment Unit Processes: Physical and Chemical, CRC/Taylor & Francis Group, Boca Raton, FL, 2006 (1314 pp., Price: US$ 129.95 ($8\frac{1}{2} \times 11$ in. format), ISBN: 0-8247-0695-1).

The sheer size of this book makes a comprehensive review virtually impossible. Without doubt, Hendricks has written the