PRACTICAL WASTEWATER TREATMENT
To Marianne for her invaluable support, and Laura and Jennifer for being themselves
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Index
Over the years I have been fortunate enough to meet some very interesting people and have some fantastic experiences in the environmental field. In 1998, Nina Webber, the then Educational Director for the American Institute of Chemical Engineers approached me to teach a course in wastewater treatment because an existing instructor balked at the assignment of going on to teach in Mexico. This book was developed from that teaching assignment.

This is a teaching tool for the chemical and environmental engineering professionals. It is not designed to be a textbook or primer for those entering this profession because it lacks adequate development of theory for that purpose and relies upon plant experience and a mastery of essential engineering fundamentals for many of the subjects. This book is more a cross between a chemical engineering handbook and a refresher tool for the plant engineer who suddenly finds himself or herself having to learn to water and wastewater treatment and does not know where to start. I hope that it serves that purpose.

The theoretical development generally tends to be sparse except in the area of biological wastewater treatment and some elements of hydraulics. I have also placed a good bit of emphasis on the development of biological modeling of wastewater treatment plants because I firmly believe that it is the best way to design facilities, and it is the wave of the future. I have, through my own work, found out that most wastewater treatment plants designed by municipal codes are between 30% and 50% overdesigned, and when the consultant applies a standard allowance for growth that often means that the plant is 100% or more overdesigned and wasteful of precious municipal resources and money. The design of a system with that much additional
capacity leads to sloppy operation and poor control. It also leads to a perception that wastewater plant operators do not need to understand the biological processes, and that they are little more than mechanics.

Finally, I have included some design hints and practical experience where it may be helpful. The focus has been to provide a framework of useful tools and helpful aids where they can be found, including links to the World Wide Web, and various other textbooks where they treat specific subjects.

I have taken some pains to assemble various Web sources and references, including helpful papers and articles and even computer programs on to a disk, which was originally supplied as a supplement to the course. The disk is available from me for a modest fee.

Questions, comments, flames, and other stuff should be directed to my attention via my e-mail address: dlr@mindspring.com

Dave Russell
March, 2006