



John R. Harrison, PE, MS

Consulting Engineer

Project Overviews

Activated Sludge Projects: Conducted process analysis, studies, or design for more than 35 plants which use the activated sludge (AS) process. An expert witness in three AS investigations. Conducted several operational audits and was primary author of, "Biological Nutrient Removal Processes" in WEF's Operations Manual of Practice 11 (MOP 11). Specialized in selector design for filament control and for enhanced denitrification.

Trickling Filter Related Projects: Provided engineering services on over 30 projects where fixed film (FF) reactors or combined FF and suspended growth (FF/SG) processes were involved. The fixed film reactors he has worked on include plastic fixed media, mobile media, random PVC media and rock media. Conducted several media extractions and estimated remaining useful life of facilities. Written procurement specifications for various media types.

Operator Training and Teaching: Has written operating manuals, conducted training seminars, or presented workshops in more than eight states and at several national and international conferences. Selected to author or chair professional manuals of practices (MOPs). Has either aided in, or been the primary author of operation manuals at five wastewater treatment plants. Full time instructor for 2-years and adjunct instructor at two universities.

BNR and Natural Systems: Conducted more than a dozen projects targeting biological nutrient removal (BNR). Wrote a manual of practice for operation of activated sludge facilities removing nitrogen and phosphorus. Analyzed or helped design improvements at both wetlands or lagoons. Designed pretreatment systems for lagoons and post algae/nutrient removal systems.

Publications

MOP 11, Biological Nutrient Removal Processes Chapter, Primary Author
MOP 10, O&M of Trickling Filters & Related Processes, Chairperson & Author
MOP 8, Design of Dual (TF/SC) Processes, Author
WEF BNR Design Manual, Nutrient Control Task Force, Coauthor
WEF Sewer Use Ordinances and MOP on Pretreatment, Reviewer

Experience

Has over 40 years of experience in the study, evaluation, capacity setting and design of wastewater facilities.

Served more than 80 clients and completed nearly 150 wastewater related projects.

His specialty area is in modernization of wastewater treatment plants, especially for nutrient removal and for enhanced process control.

Professional development has ranged from teaching to regulatory oversight, and from operator training to facility design.

Education

MS Sanitary Engineer

BS Civil Engineering

Registration

Professional Engineer/Oregon