

## SUMMARY

**Senior Civil Engineer** with over 30 years experience in water, wastewater, and stormwater planning, hydraulic modeling, and design. Performed in both technical and management positions including sitting on Corporate Board of Directors. Provided training to young engineers and quality control reviews for planning and design projects. Managed projects completed on time and within budget with engineering fees as high as \$1 million.

## TECHNICAL EXPERTISE

- Project Management for planning and design projects
- Master Planning for water, wastewater, and stormwater systems
- NPDES stormwater permitting for Municipal, Industrial, and Construction General Permits
- Design of gravity and pressure pipelines, storage reservoirs (concrete and steel), and stormwater collection and detention/retention systems
- Quality Control/Quality Assurance reviews of planning and design projects
- Hydraulic modeling using non-proprietary software such as InfoWater, InfoSWMM, WaterCAD, SewerCAD, and InRoads
- Analytical problem solving techniques, including data reduction and analysis
- Fluid mechanics, gravity and pressure pipeline flow, and pumping analysis

## PROFESSIONAL EXPERIENCE

**Washington State Department of Ecology**, Olympia, WA

2009 – Present

### **Environmental Engineer 5 (Stormwater Engineer)**

Responsible for engineering support to Municipal, Industrial, and Construction Stormwater permit managers. Provided on-call engineering support and review of pre-design and final design packages for stormwater grant construction projects. Prepared and presented classes on the Stormwater Management Manuals for Eastern and Western Washington.

- Provided engineering review for State grant funded pre-design and final design documents to ensure that the projects complied with stormwater regulations and that Ecology effectively managed state funds.
- Prepared and presented classes on interpretation of the Stormwater Management Manual for Western Washington (SWMMWW) and the Stormwater Management Manual for Eastern Washington (SWMMEW) to assist jurisdictions in their review of construction projects.
- Managed Technical Assessment Protocol – Ecology program that evaluated emerging stormwater water quality treatment technologies and created a path for the sale of new technologies in Washington State.
- Provided classes for Municipal permit jurisdictions on the State Stormwater Grant program. Classes helped prepare the jurisdictions to complete successful grant applications.
- Provided editing for the 2012 update of Volumes II and V of the SWMMWW. The updated manual provides technical information on compliance with the stormwater permits.

**MWH Soft, Inc. (Now Innovyze), Olympia, WA**

2007 – 2009

**Implementation Services Manager**

Responsible for creation of a new line of business to provide turnkey services building water, wastewater, and stormwater hydraulic models for Utilities, Municipalities, and Consultants.

- Established procedures within the new organization for storage and backup of digital files, invoicing, tracking proposals and projects, Quality Control reviews, resulting in a firm foundation for the business line.
- Created standard formats for proposals, Technical Memoranda, and Reports to increase efficiency in the production of those items.
- Provided training in the use of the software to students from outside MWH Soft to increase the overall knowledge base and provide engineers trained in the use of MWH Soft products.
- Provided Quality Control reviews on products produced by MWH Soft Implementation Services staff to ensure quality product delivery.
- Provided assistance to sales staff in proposal writing and data review to enable them to continue working on their primary mission of sales.

**HDR Engineering, Inc., Olympia, WA**

2004 – 2007

**Professional Associate**

Joined HDR following their acquisition of EES. Company's regional expert in hydraulic modeling. Responsible for project management, quality control review of design projects, and hydraulic and hydrologic modeling in Pacific Northwest.

- Managed design projects for gravity and pressure pipelines, steel and concrete storage reservoirs, and pump stations that were completed within time and budget.
- Assisted HDR National Modeling Lead to develop quality control policies for all corporate modeling work products to ensure modeling projects would meet or exceed standards.
- Provided hydraulic modeling for design projects including transient, fire flow, and water quality analysis assisting design engineers in determining pipe sizes and need for new pipes.
- Upgraded Quality Control program within Olympia office to meet standards set by HDR national Quality Control/Quality Assurance team. Increased quality of project deliverables.
- Provided Peer review on EPA document *Initial Distribution System Evaluation Guidance Manual* regarding hydraulic modeling increasing HDR's visibility in national water quality arena.

**Economic and Engineering Services, Inc. (EES), Olympia, WA**

1988 – 2004

**Principal**

Shareholder and Lead Engineer for company. Responsible for all stormwater systems, pipeline, pump station, storage reservoir designs, and hydraulic / hydrologic modeling produced within five offices. Managed numerous water related design projects completed within time and budget.

- Provided training to staff in design, modeling, and quality control review of work products activities to ensure work product met EES criteria resulting in improved project deliverables and increased staff technical knowledge.
- Acted as "on-call" stormwater engineer for local surface mine. Resulted in steady income for company as well as training of several staff people regarding requirements for surface mine water control in Washington State.

- Presented six all-day training sessions in Western Washington on the *2001 Stormwater Management Manual for Western Washington* with Washington State Department of Ecology staff. The work provided exposure for EES in the stormwater field resulting in new projects.

### **EDUCATION**

- Masters Degree in Engineering Management, St. Martins University, Lacey, WA
- Bachelors of Science in Civil Engineering, Union College, Schenectady, NY

### **PROFESSIONAL CERTIFICATIONS**

- Professional Engineer: Washington, Idaho, Oregon, Alaska
- Member ASCE, AWWA (national and section committee member), WEF

### **COMMUNITY SERVICE**

- Adjunct Professor, St. Martins University Civil Engineering Department
- President, Thurston County Humane Society
- Commissioner, Joint Animal Services Commission
- Volunteer, Providence St. Peter Hospital Animal-Assisted Activities and Therapy Program
- Board Member, Community Impact Association (501(c)3 organization)

### **PUBLICATIONS**

- Lead Editor, *Stormwater Management Manual for Western Washington*, Volumes II and V, 2012
- *Development of a System-Specific Diurnal Curve Using Available SCADA Data* 9th Annual Water Distribution System Analysis Symposium, 2007 Presentation and Paper
- *Improving Water Quality by Optimizing Reservoir Operation* Pacific Northwest AWWA Conference, 2007 Presentation
- *Planning for Growth Outside Existing Water Distribution System Boundaries* MWHSoft International Geoengineering Conference, 2006 Presentation
- Peer Reviewer for EPA Guidance Manual *Initial Distribution System Evaluation Guidance Manual* regarding hydraulic modeling requirements, 2006
- Internal HDR Presentation (webcast) on IDSE hydraulic modeling requirements, 2006
- *Introduction to Hydraulic Models* Presentation to Washington State Department of Health (DOH) Regional Engineers and Planners at the request of DOH, 2005
- *Improving Water Quality by Optimizing Reservoir Operation* 8th Annual Water Distribution System Analysis Symposium, 2006 Presentation and Paper
- *Hydraulic Modeling and Finished Water Storage Reservoir Management*, WaterScapes (HDR Publication) June 2005 with John Maxwell
- Boyd, G.R., H. Wang, M.D. Britton, D.C. Howie, D.J. Wood, J.E. Funk, and M.J. Friedman. 2004. *Intrusion within a simulated water distribution system due to hydraulic transient. I: Description of test rig and chemical tracer method*, Journal of Environmental Engineering 130(7): 774-777.
- Boyd, G.R., H. Wang, M.D. Britton, D.C. Howie, D.J. Wood, J.E. Funk, and M.J. Friedman. 2004. *Intrusion within a simulated water distribution system due to hydraulic transient. II: Volumetric method and comparison of results*, Journal of Environmental Engineering 130(7): 778-783
- Melinda Friedman, with Douglas Howie as co-author along with nine others *Verification and Control of Pressure Transients and Intrusion in Distribution Systems*, AWWA Research Foundation, 2004
- *An Engineer's Perspective on Line Valves and Maintenance* Pacific Northwest AWWA Conference, 2002 Presentation

- Gregory Kirmeyer, Melinda Friedman, with Douglas Howie as co-author along with six others *Pathogen Intrusion into the Distribution System*, AWWA Research Foundation, 2001
- *Identifying Emergency Reaction Time with Hydraulic Models* Pacific Northwest AWWA Conference, 2001 and 2nd Annual WDSA Symposium, 2000 Presentation
- *Using Hydraulic Modeling to Improve System Operation*, 2nd Annual Water Distribution System Analysis Symposium, 2000 Presentation and Paper
- *Problems with SCADA Data for Calibration of Hydraulic Models*, 1st Annual Water Distribution System Analysis Symposium, 1999 Presentation and Paper