Water Solutions

GD&F

GWIN
DOBSON &
FOREMAN

CONSULTING ENGINEERS

Planning & Research

Technical Innovation, Function And Practicality

To ensure the success of each project, Gwin, Dobson & Foreman applies time-tested research methods to optimize project function, affordability and performance.

GD&F examines the effects of future regulations, economic constraints and new technologies, in addition to demand and demographic projections. Digital technology such as GIS, GPS and computer modeling are used extensively to define trends and correlate system data.

GD&F's service-oriented team of environmental scientists and engineers are sensitive to function and practicality. Serviceability, maintenance and operations are tailored to the specific needs and preferences of the client.

The results of our planning and research are comprehensive, yet clear and concise. GD&F's studies and reports are prepared not only for the specialist, but the general public as well. With an extensive use of graphics and maps, an emphasis is placed upon technical precision and clarity.

Our expertise extends to regional planning, system master plans, capital project programming, preliminary engineering and project financing.

Specialized Services

- System Master Planning And Programming
- Data Acquisition And Monitoring
- Surface And Groundwater Analysis
- Water System Hydraulic Modeling
- GIS Applications
- Reservoir Operation

Reservoir System

Spillway & Water Treatment Plant

Water Supply Dam

Water Resources

Engineering Know-How For Source Development

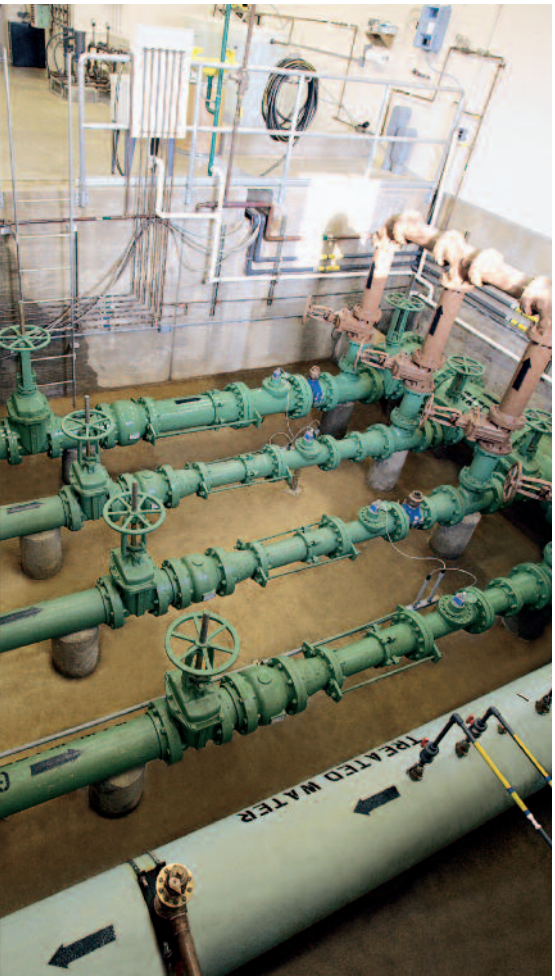
Known for technological leadership and innovation, Gwin, Dobson & Foreman has the proven expertise to develop water supplies and protect water resources. Our design experience encompasses watershed protection, dams and reservoirs, well fields, river intakes and land/water reclamation.

Source water protection and water supply safety are paramount concerns to security and health conscious consumers. GD&F has performed watershed studies, vulnerability assessments and emergency response plans for many public water suppliers.

GD&F is a leader in dam design and structure rehabilitation projects. We have designed unique solutions including inflatable rubber dams, labyrinth spillways, RCC overtopping protection, asphaltic concrete decks, slab-buttress dam repairs and impervious liner systems. Our design experience also includes embankment stability, seepage control, spillway systems and concrete rehabilitation.

GD&F's environmental scientists and geo-technicians have developed hundreds of groundwater sources. We have the special expertise that well field and spring development require.

A keen knowledge and understanding of current regulations are critical. The GD&F team is well versed in permit and approval processes for public water supply, water allocation and environmental protection.



High Capacity Well Field

Specialized Services

- Source Water Protection
- Surface Source And Ground Water Development
- Flood And Drought Modeling
- Dam Breach Modeling
- Spillways, Intakes And Channels
- Aquifer Testing And Analysis
- Water Allocation / Withdrawal Permits
- Environmental Permits And Approvals
- Vulnerability Assessments And Emergency Response Planning

Chemical Storage And Feed System

Pretreatment And Sedimentation

Ultraviolet Disinfection System

Ozone Generation Equipment

Treatment Systems

An Emphasis On Multiple Barrier Protection

Gwin, Dobson & Foreman understands the current regulatory environment and the increased significance of creativity and flexibility in treatment plant design. Addressing such regulations as the USEPA Stage-2 Disinfection Byproducts Rule and Long Term 2 Enhanced Surface Water Treatment Rule, GD&F has become an industry leader in the effective use of new water treatment methods and technologies.

GD&F emphasizes "multiple barrier" protection for treatment plant design and regulatory compliance. Processes such as ozonation, enhanced coagulation, membrane filtration and ultraviolet disinfection are now viable treatment options. GD&F also uses the latest technology in process treatment, system operations, monitoring and process control.

Specialized Services

- Treatability Pilot Studies
- Treatment Process Selection And Design
- Chlorine Detention Tracer Studies
- Plant Performance Testing (CT, MPE, FPE, TOC, D/DBP, LT2ESWTR)
- Coagulation Optimization By Zeta-Potential
- System Startup And Troubleshooting
- SCADA And Telemetry Systems

Filler Backwash System

Low Pressure Microfiltration System

Nanofiltration System

Small Flow Cartridge System

Membrane Filtration

At The Forefront Of Membrane Design Technology

Gwin, Dobson & Foreman is a leader in membrane filtration system design. We have extensive project experience with microfiltration, ultrafiltration, nanofiltration and reverse osmosis applications using cartridge, high pressure and submerged systems.

Membrane filtration technologies have revolutionized many aspects of the water treatment industry. GD&F has been at the forefront of membrane system design from the beginning and continues to engineer unique solutions and applications.

Although particle separation is central to membrane treatment, understanding proper applications and related processes is critical. GD&F's extensive experience in pilot testing, process design and operation will ensure a fully functional, but cost effective membrane treatment system.

Submerged Ultra Filtration System

Storage

Design That Addresses Quality Considerations

Water storage health and safety have come under ever increasing scrutiny by state and federal regulators. Water age, mixing and circulation have a definite effect on water quality. The integrity and security of storage tanks are no longer afterthoughts in today's world.

With these issues in mind, Gwin, Dobson & Foreman has designed storage tanks in all hydraulic settings and physical configurations such as standpipes, spheroids, ground-level, reservoirs, pillar/pedestal and clearwells. We've used reinforced concrete, precast/post-tensioned concrete, welded steel, stainless steel, glass-lined/ bolted steel and prestressed/ wire-wound concrete systems in their construction.

GD&F uses computer modeling to predict water age, turnover, chlorine residual and temperature parameters. Hydraulic modeling is used to determine available fire flow and required storage.

GD&F also has extensive experience in tank rehabilitation. Our coating system knowledge and structure assessment skills ensure the best repair strategy.

Specialized Services

- Storage Systems Computer Modeling
- Fire Flow Analysis
- Water Age Modeling
- Mixing/Circulation Analysis and Design
- Coating Systems Analysis
- Tank Rehabilitation
- Tank Water Quality
- Disinfection Byproducts Control

Transmission & Distribution

Engineered Solutions For All Applications

The distribution of water – meeting the demands of all customers at all times – is a never-ending challenge for the water industry. For almost sixty years, Gwin, Dobson & Foreman has met these demands with effective design and engineering.

GD&F has designed hundreds of water systems for every application and service environment. Our knowledge of materials, new technologies and advanced design is unparalleled. We use computer modeling methods to determine such community needs as fire protection, flow metering, leak prevention, system reliability and working pressures. Practical considerations such as valve and hydrant placement, system interconnection and surge protection are time tested.

We are familiar with all types of pumping applications including vertical turbine, horizontal centrifugal, self-priming, constant pressure and hydro-pneumatic systems.

GD&F's experience also includes rehabilitation and replacement of existing systems. Many of our projects incorporate pipe cleaning and lining, trenchless technologies, tunneling and directional borings. Our knowledge of system problems and solutions includes conductivity protection, pressure reducing/ pressure sustaining systems, divisioning vaults and metering stations.

Specialized Services

- Hydraulic Modeling
- Flow Testing And Calibration
- Pressure Control Devices
- Metering And Flow Monitoring Applications
- System Materials Application And Design
- Water Hammer And Surge Protection Analysis
- Distribution System Water Quality Studies
- Pump Testing (Alignment, Shock Pulse, Vibration Analysis)
- Leak Detection, Unaccounted-For-Water Studies

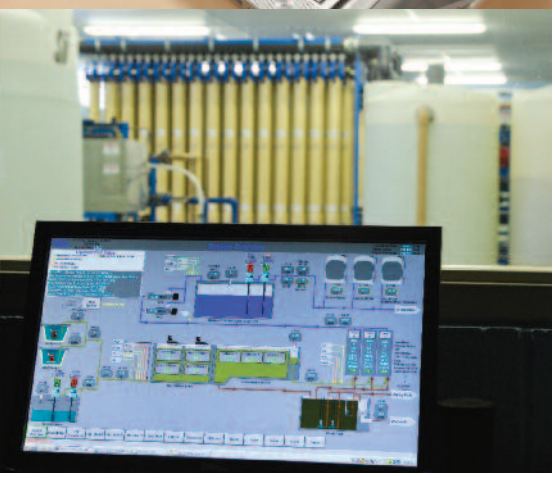
System Management

Full Service Consultation, Expert Hands-On Assistance

Gwin, Dobson & Foreman offers comprehensive engineering consultation to our water clients. Our services go beyond the design of projects and facilities to include water system management. We draw upon our years of extensive experience in real world situations.

GD&F provides client assistance, from drafting inter-municipal agreements and computation of water rates to advice on system administration and operation. GD&F also has completed capital charge studies using the latest in current techniques and practices.

Our licensed operators have hands-on experience in running, repairing and optimizing water systems and treatment plants. GD&F personnel have designed SCADA and related control systems for dozens of applications, both large and small. They are fully trained to assist in plant operation, such as filter performance evaluations, CT, corrosion control, pump repairs, control system troubleshooting and coagulation optimization. These trained specialists are also experts at plant start-up, O&M assistance and troubleshooting.



Specialized Services

- Water Rate And Facility Planning Studies
- Capital Charge And Tapping Fee Studies
- Inter-Municipal/Inter-Agency Service Agreements
- Customer Surveys And Needs Assessments
- Operation And Maintenance Programs
- Licensed Operators
- System Start-Up And Training
- Monitoring And Data Acquisition
- Automatic Meter Reading System Design

GD&F

GWIN
DOBSON &
FOREMAN
CONSULTING ENGINEERS

3121 FAIRWAY DRIVE, ALTOONA, PA 16602
814.943.5214 FAX 814.943.8494
E MAIL INFO@GDFENGINEERS.COM
GDFENGINEERS.COM