

# SCIENCE AND ENGINEERING



Custom Water Management Solutions to Use Resources More Efficiently



## IMPROVE YOUR BOTTOM LINE WITH A RANGE OF ENGINEERING, SCIENCE AND REGULATORY SOLUTIONS

Agricultural water expertise revolves around more than just center pivots. The best science and engineering solutions include people as part of the equation. True proficiency involves years of experience in fields and on sites, identifying potential issues before they become problems—as well as recognizing opportunities to produce more with less.

That's why we offer an experienced team of engineers, agronomists, soil scientists and hydrogeologists to help with virtually any water-related issue, managing the process from design through implementation ... and beyond. Our core team has more than 185 years of combined experience collaborating and helping clients overcome obstacles to their success by doing it right the first time. And our authorized dealer network is your local connection.

Our team is composed of acknowledged leaders in their fields of study. They win industry awards and establish innovative practices that soon become standards. In short, they are the experts that other experts seek out for their advanced knowledge.

Yes, we can provide industry-best equipment and technology. We are also your go-to source for unmatched professionals who handle everything from wastewater management, soil testing and hydrogeology studies, to reusing wastewater, soil assessments and navigating regulatory hurdles. Experience the benefits of working with the Valley® Science and Engineering team yourself.



## GATHER THE INFORMATION YOU NEED TO INCREASE YIELD AND PROFITABILITY

Only 30% of the world's available water is suitable for farming. With the world's population expected to increase to 9 billion in 30 years, it's never been more important to conserve and re-use water while simultaneously maximizing production on every acre. That requires leveraging scientific expertise to take the guesswork out of applying water.

Valley has led scientific advancement in irrigation since we pioneered the industry. And that experience extends to a comprehensive approach including all aspects of agricultural water use, optimizing yields and offering real-time data from beginning to end.

From pivots and pumps to livestock production and commercial food processing, Valley is your total solutions provider.

### Among other services, we offer:

- Irrigation Assessments and Feasibility Studies
- Soil Assessment and Crop Management Planning
- Surface and Groundwater Studies
- Irrigation Scheduling



**Scientific irrigation scheduling is proven to increase yields by as much as 20% while lowering water and electrical use an average of 10%. For more details, visit [valleyirrigation.com/scheduling](http://valleyirrigation.com/scheduling)**



## FOOD SAFETY CASE STUDY

### MASTERING THE PROCESS OF PROCESS WATER

“Food safety” encompasses a wide array of concerns governing the origins of food that arrives in stores. Regulations often change and consumer expectations can be vague. Companies need a partner that can help them navigate the regulatory hurdles, so they can establish a brand of consistent quality. At Valley, both safety and quality are ideals we understand very well.

A major food processor with facilities in multiple locations was looking for a partner to formulate and execute a plan to operate more efficiently and with cleaner recycling programs for their entire operation, taking specific facilities and differing regulations into account.

Our work began with a full evaluation of current processes, then moved quickly into design, permitting and management of land treatment systems. The solutions eventually ranged from constructed wetlands to direct land application.

We also prepared irrigation and crop management plans, operation and maintenance manuals, land treatment site characterizations and facility engineering reports. Our hydrogeologists planned and supervised installation of groundwater monitoring networks at multiple locations while the rest of the team developed plans for monitoring groundwater, surface water, soil properties and crop harvest.

This client saved so much water—not to mention expense—that they contract with us on an ongoing basis for services such as land management advising, data analysis, regulatory negotiations, water resources planning, soil sampling and moisture monitoring.

## HELPING YOU MORE EFFICIENTLY USE RESOURCES

When it comes to designing and building any system, we believe in two things. First, ask questions to truly identify the problem. And second, do it right the first time. We find this approach usually saves you capital in the long run and makes everyone happier with the results.

Superior design, materials and construction lead to lasting performance, increased efficiency and better ROI. At Valley, reliability and durability are standard.

- Water Supply and Treatment
- Turnkey Construction
- Solar Power Planning, Engineering and Implementation
- End-to-End Irrigation and Pumping System Design



**Efficient, integrated pumping technology can save growers 20% or more on energy costs. Growers around the world are saving an estimated 4.3 million kWh per season with our remote solutions.**



## AQUIFER SUSTAINABILITY CASE STUDY

### A NOT-SO-SIMPLE CASE OF SUPPLY AND DEMAND

Changing weather patterns, rising population and urban sprawl are all putting pressure on agriculture to do more with less. Water is becoming scarcer, prompting governments at all levels to enforce new regulations. The established ways of accessing water may be restricted or even eliminated. All of this requires landowners, growers and ag operations to seek out trusted service providers.

One large ranch in the southwestern United States contacted us with a due diligence concern related to a real estate transaction. They needed to prove that irrigation for their 240+ pivots supplied by more than 500 wells was sustainable over 100 square miles for at least 20 years.

Valley completed a full assessment within 60 days, beginning with historical perspective and aquifer changes over the years. Technicians worked with specialized instruments and deployed a customized mapping app to locate wells and enter data for developing real-time maps of groundwater elevations and aquifer thickness. State-of-the-art software also estimated groundwater storage capacity and projected well yields for the next 20 years.

As water risk mitigation becomes an even greater issue, trust the company that has been helping ag operations conserve water for decades.

## STAY IN COMPLIANCE—AND KEEP MOVING FORWARD

With the capital investment required for most agricultural water and wastewater projects, you can't afford to ignore government and regional requirements. It's better to be proactive and deal with professionals who know all the ins and outs from beginning to end and can anticipate issues.

- Laws and Compliance Reporting
- Water Rights
- Solid Solutions for Water Treatment



**Valley services extend from consulting to construction and remediation, removing barriers and headaches from businesses and allowing them to focus on what they do best.**



## WASTEWATER CASE STUDY

### SOLID SOLUTIONS FOR WATER TREATMENT

Of all the challenges facing food producers, wastewater treatment may be the biggest hot-button issue. Different industries have assorted protocols that can be both complex and expensive, and each require innovative solutions to assure sustainability and compliance with all regulatory agencies.

A company in the northwestern United States contacted us when their clay-lined winter storage pond had accumulated excess biosolids. Valley experts conducted an options assessment, including biological enhancement and land application of both liquids and dry solids. The plan addressed waste characterization, field determination, crop suitability and loading rates. Biosolids used as a soil amendment reduced the amount of commercial fertilizer needed for crops and avoided sending them to a landfill, conserving time, energy and capital.

After dredging and removing tons of dry solids, we completed a seepage test. Results indicated that both cells exceeded the allowable limits, so Valley prepared drawings and specifications to reconstruct the existing pond liner, submitted them for approval with the appropriate regulatory agency, and subcontracted for excavation and liner deployment services. The new liner eliminated the leakage of wastewater, protecting the environment.

This project further demonstrated how Valley services extend from consulting to construction and remediation, removing barriers and headaches from businesses and allowing them to focus on what they do best.



## AGRICULTURAL SUSTAINABILITY

Valley founded the center pivot industry as a way to irrigate more efficiently, and we have always been dedicated to providing solutions that help growers produce greater yields while using fewer resources—and maximizing their operation's profitability.

The pursuit of energy and water efficiency has driven our innovation from the beginning. Because environmental responsibility isn't just a good idea—it's the purpose of everything we do. Join us as we continue to transform agriculture in your back yard and around the world.

## WATER EFFICIENCY PAYS DIVIDENDS

Our integrated approach can identify ways to maximize yield while saving valuable time and resources. Think of it as a simplified "one-stop-shop" for every aspect of science-based water management, including guidance through any issues that might slow down your progress.

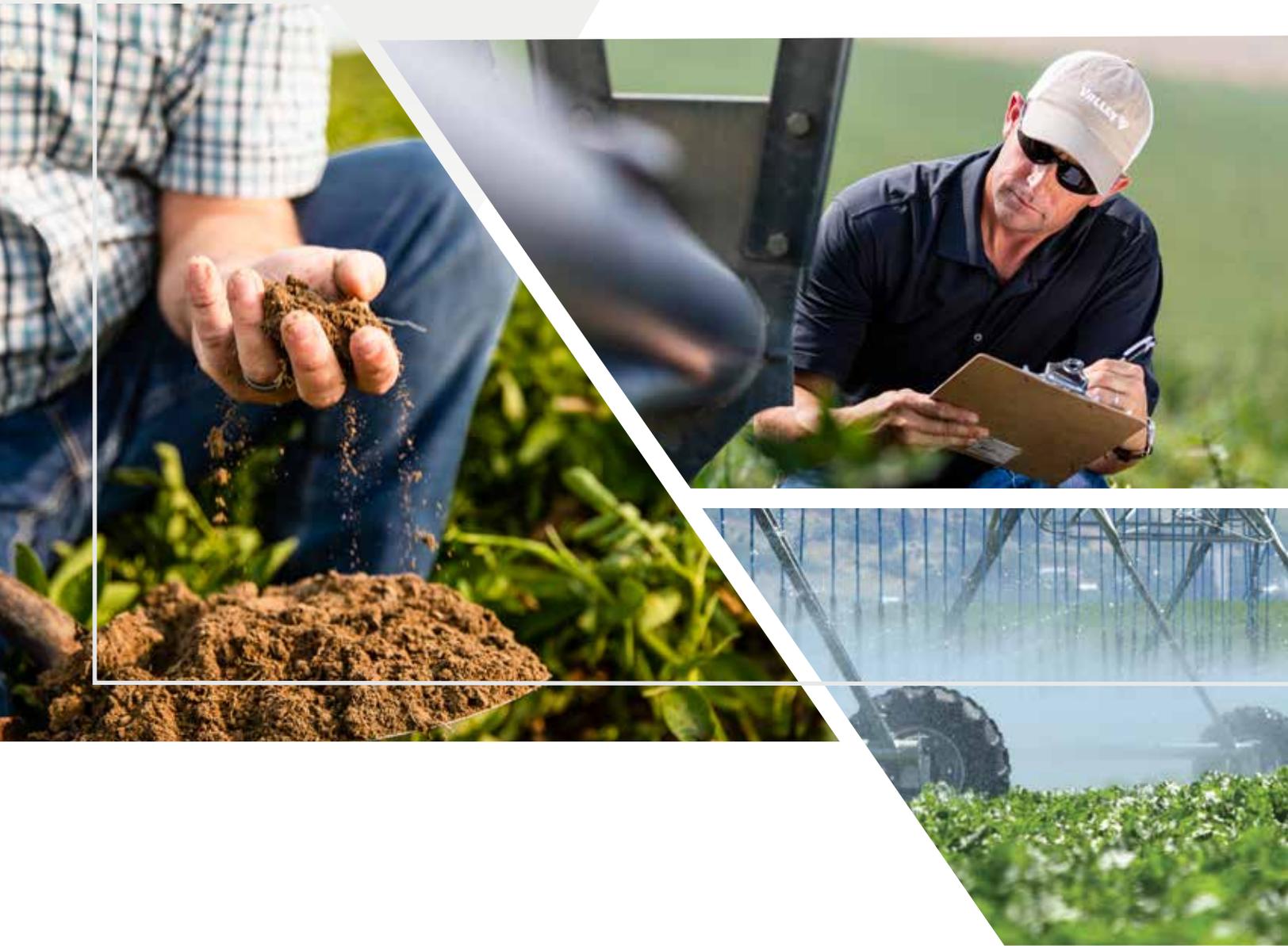
We understand the complexity of the issues your operation faces, based on our decades of experience. More importantly, we understand the importance of getting it right the first time. If you have a unique challenge, tap into our unique combination of agricultural science, engineering and regulatory knowledge.

[Contact the Science and Engineering experts from Valley today.](#)



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