Irrigation Leader

VOLUME 11 ISSUE 2
WASHINGTON STATE EDITION

FEBRUARY 2020

Lorri Gray: Reclamation's Successes in the Pacific Northwest

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Irrigation Leader

Irrigation Leader is published 10 times a year with combined issues for July/August and November/December by

WATER STRATEGIES LLC
An American company established in 2009

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SUBMISSIONS:
Irrigation Leader welcomes manuscript, photography, and art submissions. However, the right to edit or deny publishing submissions is reserved. Submissions are returned only upon request. For more information, please contact our office at (202) 698-0690 or irrigation.leader@waterstrategies.com.

ADVERTISING:
Irrigation Leader accepts one-quarter, half-page, and full-page ads. For more information on rates and placement, please contact Kris Polly at (703) 517-3962 or irrigation.leader@waterstrategies.com.

CIRCULATION:
Irrigation Leader is distributed to irrigation district managers and boards of directors in the 17 western states, Bureau of Reclamation officials, members of Congress and committee staff, and advertising sponsors. For address corrections or additions, please contact our managing editor, Joshua Dill, at joshua.dill@waterstrategies.com.

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COVER PHOTO:
Lorri Gray,
Director of the Bureau of Reclamation's Columbia–Pacific Northwest Region.
Photo courtesy of the Bureau of Reclamation.

PHOTO COURTESY OF THE BUREAU OF RECLAMATION.

Regional Director Lorri Gray

By Kris Polly

Lorri Gray has been working for the Bureau of Reclamation since high school. Today the director of the Columbia–Pacific Northwest region, she knows the agency inside and out, and it is always a pleasure—and an educational experience—to speak with her. In our cover story, she talks about the Odessa Groundwater Replacement Plan, the Yakima Basin Integrated Plan, title transfer, and the Columbia River Treaty.

Another person of great experience we have the privilege of interviewing in this issue is Daren Coon. He has been at Idaho's Nampa & Meridian Irrigation District for 44 years and has been its secretary-treasurer and secretary of the board for more than three decades. During his time at the district, Mr. Coon has overseen the installation of a pressure urban pipeline system, a rapid changeover in district technology, and title transfer, among many other accomplishments. Mr. Coon is now retiring, surely with a sense of satisfaction. Bravo, Daren, and thank you for your work in the irrigation field!

In this issue, we also speak with Kyle Smith of RH2 Engineering, Inc., which provides water, sewer, and irrigation services to agencies across the Northwest; to Diane Campanile, director of human capital management and employer compliance at Lyons Insurance, about several important human resources issues; and to Tim Hicks of In-Situ about his company's flow-monitoring instruments. In addition, Tom Myrum updates us on recent awards given by the Washington State Water Resources Association.

We also take a look at an unusual piece of technology—the humble goat herd. Goatscaping is an effective way to rid ditches, drains, and dams of dense and woody overgrowth.

In our Innovators section, we highlight Dawson Tire and Wheel's RhinoGator tire—a bright green polyethylene pivot tire that doesn't slip, go flat, or break—and talk to Herb Besler, Roland Besler, and Cliff Kester of Besler Industries about their useful—and insurance rate reducing—pickup flatbeds.

Across the irrigation industry, there are smart, committed, and hardworking people making incremental improvements in technology, business practices, and organizational structures. Over the course of the years, these changes add up to something big. Each person's career contributes to the success of irrigated agriculture in the United States. IL

Kris Polly is editor-in-chief of Irrigation Leader *magazine and president of Water Strategies LLC, a government relations firm he began in February 2009 for the purpose of representing and guiding water, power, and agricultural entities in their dealings with Congress, the Bureau of Reclamation, and other federal government agencies. He may be contacted at kris.polly@waterstrategies.com.*

Reclamation's Successes in the Pacific Northwest

Regional Director Lorri Gray signs the renewal master water service contract with East Columbia Basin Irrigation District.

PHOTO COURTESY OF THE COLUMBIA BASIN DEVELOPMENT LEAGUE.

Lorri Gray, the director of the Bureau of Reclamation's Columbia–Pacific Northwest Region, has been working for the agency since high school. With experience working for Reclamation in Nevada; Washington, DC; and Idaho in a wide range of positions, Director Gray knows the agency inside and out.

In this interview with Irrigation Leader, *Director Gray discusses Reclamation's recent steps to address the Odessa groundwater area, the Yakima Basin Integrated Plan (YBIP), and the Columbia River Treaty.*

Irrigation Leader: Please tell us about your background and career with Reclamation.

Lorri Gray: I have been with Reclamation for 37 years, serving in the Lower Colorado Region; the Washington, DC, office; and most recently in the Columbia–Pacific Northwest Region. Prior to being named the Columbia–Pacific Northwest regional director in 2012, I served as the Lower Colorado regional director from 2007 to 2011.

I was born and raised in Cortez, Colorado, and moved to Boulder City, Nevada, where I began working as a student in Reclamation's employee development office while still in high school. I worked in the human resources office across numerous business lines until I moved to Washington, DC, in 1998. I was offered the liaison position in DC, which I held for 2 years. Then I moved back to Boulder City to become an assistant regional director and later served as the deputy regional director for Bob Johnson, a man whom I admire and respect. After negotiating the Lower Colorado River Multi-Species Conservation Program, I was able to

Low clouds over the Columbia River near Chelan, Washington.

spend almost 2 years standing up that program and ensuring it was fully operational. When Bob Johnson moved to DC in 2007 to serve as the commissioner of Reclamation, I moved into the regional director position.

Irrigation Leader: Please tell us about the significance of the recently signed contract with East Columbia Basin Irrigation District (ECBID) for the Odessa Groundwater Replacement Program.

Lorri Gray: The Odessa area, located in central Washington, is one of the most productive agricultural areas in the state of Washington. Agricultural production in Washington State totaled $10.6 billion in 2017. Washington is the second-leading producer of potatoes in the United States. In 2018, Washington's potato crop alone was valued at $788 million. Much of that was grown in the Odessa area.

Much of the agricultural land in the Odessa area is irrigated using groundwater, but unfortunately, the aquifer in the region is declining. The Odessa Groundwater Replacement Program comprises eight systems with seven pumping plants and laterals that will bring water to farms east of the East Low Canal. Its main goal is to get water on the ground as quickly as possible to support the Washington State Department of Ecology in reducing pressure on the declining aquifer and to support the district's efforts to provide more reliable surface irrigation water to landowners who are currently irrigating with groundwater.

The renewal master water service contract is a great opportunity for ECBID, the State of Washington, and Reclamation to work together on an aquifer rescue program. We are now able to move forward on the delivery of surface water to up to 70,000 acres of irrigated land that are now surviving on groundwater. That will provide relief to the aquifer and help sustain it for farmers who are unable to move to surface water. It also helps the small towns, communities, and food processors who rely on the aquifer for their water supply.

I want to commend the State of Washington and ECBID for their proactivity and perseverance in moving this project forward. The infrastructure needed for this project is primarily funded by the State of Washington and the irrigators; Reclamation contributed funding to design and construction. This effort is a good example of a public-private investment model, involving both the state and federal governments.

Irrigation Leader: How does this contract compare to other contracts Reclamation has signed in recent years in terms of size?

Lorri Gray: This contract with ECBID is double the size of other master water service contracts Reclamation has approved over the past 40 years. Not only is it a large contract, it also provides some unique opportunities for conservation. The district will potentially be able to supply an additional 20,000 acres using conserved water. This contract was possible thanks to the big-picture thinking of Derek Sanderson, Bill Gray, and Gary Kelso, as well as the hard work and diligence of Craig Simpson, Tom Tebb, and Dawn Wiedmeier. They have been instrumental in moving this contract forward and have demonstrated what we can accomplish working together.

Irrigation Leader: Please tell us about the importance of the YBIP.

Lorri Gray: The YBIP is a distinctive model that is truly a success. The YBIP gives everyone something and nobody everything. It has brought environmental groups, water users, and the Yakama Nation together to meet the needs of all by conserving water and addressing drought and fishery needs. It's a project with grassroots support and has thrived because everyone has bought into each other's needs from an interest-based standpoint; we've realized that as a group, they can achieve much more. Participants have been able to

PHOTO COURTESY OF THE BUREAU OF RECLAMATION.

Rainclouds over Silver Lake Winery, located outside of Yakima, Washington.

set aside their differences and focus on the greater good. It's really a productive model!

Irrigation Leader: What are your thoughts on title transfer?

Lorri Gray: Title transfer is in a better place today than I've ever seen it. With the recently passed legislation, irrigation districts that are interested in taking title can now move through the process in a much smoother, more efficient way. The process requires conducting land appraisals, various land surveys, and cultural work. However, districts may be able to use the overarching statute, eliminating the need for specific legislation. Any districts that are thinking about title transfer should contact us to explore the possibilities. Taking title allows districts to broaden their destinies and control economic decisions tied to their infrastructure as well as future operational decisions. It's a win for irrigation districts, it's a win for end users, and it's a win for taxpayers. We have at least three transfers that we are hoping to complete in 2020—and maybe more.

PHOTO COURTESY OF ABHINABA BASU.

PHOTO COURTESY OF THE BUREAU OF RECLAMATION.

Irrigation Leader: Would you also provide us with an update on the Columbia River Treaty?

Lorri Gray: The United States and Canada are working to modernize the Columbia River Treaty regime, including determining how post-2024 changes in the treaty are implemented. This initiative is being led by the State Department and the negotiating team includes representatives from the Bonneville Power Administration, the U.S. Army Corps of Engineers, the U.S. Department of the Interior, and the National Oceanic and Atmospheric Administration. The U.S. team is focused and working well together. We have held eight negotiating rounds with Canada since May 2018, covering a variety of topics including flood risk management, hydropower, ecosystem cooperation, and adaptive management. The conversations have been productive and frank and are contributing to our efforts to modernize this treaty regime in a way that benefits both countries. We are using the regional recommendation that was developed in 2013 as a guide in these negotiations. While I can't talk about the details, I will tell you that the negotiating team is working hard on behalf of the United States. You can find additional information at www.state.gov/columbia-river-treaty/.

Irrigation Leader: What should every member of the Columbia Basin Development League (CBDL) know about Reclamation?

Lorri Gray: Reclamation is interested in partnering with CBDL, and we appreciate the solid communication work that CBDL is doing. Reclamation and CBDL share the need and desire to work together to address aging infrastructure, build new infrastructure, and increase water reliability across the Columbia basin. I appreciate the role played by CBDL and see its positive influence in this basin.

Irrigation Leader: What should every Reclamation water user in the Columbia–Pacific Northwest Region know about Reclamation?

Lorri Gray: Water users should know a couple of things. First, the leadership in the Columbia–Pacific Northwest Region is focused on infrastructure and ensuring that infrastructure is ready to meet their needs. Second, Reclamation is looking for opportunities to increase the reliability of the water supply in this changing world. Both actions are included in Commissioner Brenda Burman's priorities for Reclamation. Additionally, we are focused on streamlining compliance activities so that we meet federal requirements while minimizing the cost and time required. Last but not least, our regional leadership team is working to build a workforce for the next 30 years. We have talented and committed people coming up in our ranks, and they are helping us do great things today. IL

Lorri Gray is director of the Bureau of Reclamation's Columbia–Pacific Northwest Region. She can be contacted at lgray@usbr.gov or 208-378-5013.

Daren Coon: Insights From a Career at NMID

The Ridenbaugh Canal diversion check structure on the Boise River.

Nampa & Meridian Irrigation District (NMID) is the largest irrigation district in Idaho, covering 69,000 acres and serving 100,000 water users. Over recent decades, its area has undergone a dramatic process of urbanization, necessitating the construction of a pressure urban irrigation system. It also went through the title transfer process with the Bureau of Reclamation during the 1980s and 1990s, acquiring title to its infrastructure and helping to shape the title transfer process along the way.

In this interview, outgoing NMID Secretary-Treasurer and Secretary of the Board Daren Coon takes a look back at his long career at the district and provides us with the insights he has gained along the way.

Irrigation Leader: Please tell us about your background and how you came to be in your current position.

Daren Coon: I was born and raised on a small farm near one of the irrigation districts' operation and maintenance (O&M) facilities. I was educated in Idaho, except for a short period of time in Portland, Oregon. I studied physics, political science, and psychology. In Portland, I spent some time in law school. I came back to Idaho looking for work and ended up with a job at the irrigation district in 1976. I held various positions within the district's offices until 1989, when I was appointed to the positions of secretary-treasurer and secretary of the board.

Irrigation Leader: Please tell us about NMID's history.

Daren Coon: The district's predecessors were a series of canal companies that weren't successful in gaining financial supporters from the East. Every time a new canal company, person, or corporation would purchase the canals in the hopes of bringing irrigation water to the valley, they would suffer under the volatility of the economy and go broke. The folks who were living in the valley at the time recognized the need for an irrigation district that could secure financing for the O&M and expansion of the system. The local residents seized the moment in 1904 and purchased the canal system and the water rights for the irrigation district. Its primary water right in the beginning was a riparian, or river, right. Subsequently, by contract with the U.S. Reclamation Service, Arrowrock Dam was built in 1915. Anderson Ranch Dam and Reservoir were completed in the late 1940s. They stored water to complement the district's natural flow.

Irrigation Leader: Is the district still primarily served by surface water?

Daren Coon: All the district's water rights are surface rights; it has no groundwater rights. Typically, there's a sufficient amount of water each year—not a generous amount, but enough to deliver to the water users for an adequate

PHOTOS COURTESY OF NMID.

growing season. We deliver approximately 200,000 acre-feet of water per year, which is a combination of natural flow and surface rights.

Irrigation Leader: How big is the district's service area?

Daren Coon: 69,000 acres. Our current water right allows us to deliver to 64,000 acres. It's the largest irrigation district in the state of Idaho. We have nearly 100,000 water users.

Irrigation Leader: What are the main irrigated crops in your district?

Daren Coon: Agriculture is not the focus of the district to the extent it was when I came to work here, but the relatively small amount of farmland left is dedicated to crops like sugar beets, corn, wheat, and alfalfa.

Irrigation Leader: Please tell us about the process of urbanization that your district is undergoing.

Daren Coon: Urbanization has been going on since the creation of this district. Even at that time, this valley was the most populous area in the state. The irrigation district recognized from the beginning that it was necessary to provide irrigation water to even small tract owners so that they could irrigate their lawns and gardens. In the early 1900s, it was possible for people to gain enough revenue off a 40-acre farm to raise a family. Obviously, that's not the case today. The district recognizes the need to provide irrigation water to all lands irrespective of what folks are going to be irrigating.

Irrigation Leader: What are the district's top issues today?

Daren Coon: Keeping up with urban growth. This is one of the fastest-growing areas in the United States. The preservation of the irrigation and drainage systems is extremely important. We also need to defend the district's water rights and the right to deliver irrigation water without encumbrance. Sometimes people seem to think that water is best left in the river system, not diverted. However, we are able to educate them that irrigation is a nonconsumptive use of water that benefits people, the economy, and the ecology of the river. Most of the water is actually returned to the river through the drainage system.

Irrigation Leader: Would you tell us about how the district decided to move into the area of pressure urban irrigation systems?

Daren Coon: The process began in the late 1980s, when there was an enormous spurt in urban development. Many newcomers wanted to access irrigation water in the new subdivisions, but there was no way to compel land developers to install adequate urban irrigation systems. Exclusion, a legal process whereby water rights are removed from the land, thus exempting landowners from the obligation to pay the O&M costs for irrigation, was occurring at an extraordinary pace. This was not acceptable: If something wasn't done to reduce the amount of excluded acreage, the district could not continue to function, and the loss of water use in the valley would mean devastation. The district went to the legislature and persuaded it to pass laws that allowed the district to enter into construction contracts with developers for the purpose of installing pressure irrigation systems and transferring the ownership and O&M responsibilities to the irrigation district for the benefit of the property owners. As part of that legislative process, we also asked for a local improvement district statute that would allow NMID to arrange for the financing of the installation of a pressure system in existing subdivisions where no viable delivery system existed and to establish a reasonable repayment plan for the landowners.

One of NMID's approximately 150 pressure urban irrigation pump stations.

Pressure urban irrigation systems have their own distinctive cost features, and the lands that benefit from the pressure systems pay these additional expenses. One benefit is that the irrigation district can deliver irrigation water to the land less expensively than a potable water purveyor could. Also, by using the available surface water rights, we reduce the stress on groundwater, which can then be used for households. Today, NMID's pressure urban irrigation system directly services over 10,000 tracts of land; NMID also has contracts with four municipal irrigation districts (the cities that lie within NMID's borders) to supply approximately 10,000 additional acres with its pressure systems. I believe that the construction of pressure urban irrigation systems was one of the single largest projects the district has undertaken since the construction of the Anderson Ranch Dam.

The Ridenbaugh Canal check structure in use in July 2019.

Irrigation Leader: Would you tell us about your experience with title transfer?

Daren Coon: In the 1980s, Reclamation began to insinuate itself in the O&M of drainage systems. Some of NMID's drains had been constructed by Reclamation around 1915 and had been transferred to the district for O&M only, meaning that NMID had not dealt with Reclamation in decades. Reclamation's renewed attempt to involve itself in the O&M process was counterproductive. In discussions with Reclamation, we decided that title transfer would be best for both parties. We found that local Reclamation representatives were sometimes less supportive than those in Washington, DC, but we were able to demonstrate that we had successfully operated and maintained our facilities from the early 20th century until the 1980s with no documented intervention by or involvement of Reclamation. The title transfer process took several years, and complete transfer of all interest asserted by Reclamation in NMID's infrastructure was accomplished in early 2001.

Irrigation Leader: What advice do you have for other districts considering title transfer?

Daren Coon: The lessons we learned from our experience in title transfer were to educate ourselves on the rules of the road, to learn who our audience was, and to seek modifications to rules only when necessary. Folks should acquaint themselves with the relevant federal rules, regulations, statutes, and laws. When they perceive a roadblock, irrigation entities tend to immediately start complaining, hoping that somebody will listen to the complaint and give them an exemption. That's not a particularly good way to function. My suggestion is to learn what your issues are, work with folks, and compromise where necessary. If both sides function under these basic guidelines, the process will be successful.

Another simple lesson is to not to ask for everything in the title transfer. Some folks are interested in obtaining exclusive title to the water right in their irrigation system and forget that the water right is a federal asset that has purposes beyond irrigation, such as hydroelectricity, flood control, recreation, and water quality. The focus should be on the effective and efficient delivery of irrigation water. In our case, NMID jointly secured its name on the water rights with Reclamation. Essentially, we're partners for life as far as the water rights go, but the district has exclusive jurisdiction over the distribution and the drainage system. That is an important component of the water right, and that jurisdiction allows NMID to be the master of its own fate.

Irrigation Leader: You collaborated with Reclamation to develop some guidelines for title transfer. What were the main new pieces of information that you were able to bring to that process?

Daren Coon: I wrote narratives on how to determine whether title transfer would require a full environmental impact statement (EIS) or just an environmental assessment (EA), which is less complicated and less expensive. Our goal

PHOTOS COURTESY OF NMID.

was to prove to the federal government that an EA would meet the needs and requirements of the U.S. Environmental Protection Agency and other federal stakeholders, including Native American tribes. I also wrote narratives about the process of valuation of an irrigation and drainage system, which persuaded Reclamation that irrigation and drainage systems like NMID's have no value except when they are used for the purpose they were constructed for.

NMID spent a great deal of time on precision discussions with the State Historical and Preservation Office (SHPO) to help it understand the historical value of the facilities that were being considered for transfer. This resulted in an agreement with the SHPO and Reclamation that preserved the historical integrity of the facilities while allowing NMID to continue with its necessary O&M duties. Many irrigation entities complain about the SHPO without studying the purposes of the historical mitigation process. This creates an artificial roadblock on the part of the entity seeking title transfer. Historical values should not be ignored or trivialized. Once this is recognized, the path forward becomes much easier.

I'm concerned that some irrigation entities are asking entirely too much of the U.S. taxpayer. I would caution entities to avoid a one-sided approach, and at all cost to avoid creating a perception of greed or demand for subsidy. Remember that perception tends to become reality. Irrigation systems cannot be compared to interstate highway systems. The beneficiaries can be concisely identified, the benefits are local and quantifiable, the systems are mature, and the need for federal financial support is not as great as it once was. What is necessary are strong federal, state, and local laws supporting the ownership of water rights and the right to use the water as the water right holders see fit.

Irrigation Leader: What are the main changes that you've seen over the course of your career?

Daren Coon: From the beginning, I absolutely and firmly believed that technology would be beneficial to the district. I began to advocate for the use of technology from nearly my first day on the job in 1976. I come from the stone age, when people actually wrote computer code. I learned to write machine code, code that actually drives computers. This required writing in a concisely stated, high-level computer language such as COBOL, FORTRAN, or DIBOL. Not many people are still around in irrigation districts doing that sort of thing. To this day, NMID invests significantly in technology, but only when we firmly know that the return on investment is proper.

Title transfer was widely discussed in the West for several years before falling by the wayside. I have always been a cheerleader for title transfer, and I was disappointed that interest waned. It seems now that the old is new again, and folks have rediscovered title transfer as a method for becoming masters of their own fate.

As we discussed, the development of a pressure urban irrigation system was a big change. If an irrigation district in the West is to survive, it needs to prepare to handle urbanization. When I was doing work for Colorado State University, I would do guest lectures in north-central California and other places in the West. I attempted to explain to those folks that instead of running from the huge wave of urban development that was coming, they should at least stand ground and be prepared to deal with it so that they could preserve the use of the water on the land.

On a local basis, one important process was the Snake River Basin Adjudication (SRBA), which began around 1983. Even though the state celebrated the conclusion of the SRBA a few years ago, it really isn't over. Just recently, a few court decisions have been issued. The SRBA is a multidecade project, but I think we can see the light at the end of the tunnel.

Irrigation Leader: What are some of the most important things you've learned as manager?

Daren Coon: It is extremely important not to forget all the moving parts in an irrigation district. The people who work at NMID are a great asset. It has been a great privilege to work alongside this great group of dedicated people. I've known so many people who have given a great deal of their personal human resources to ensure that others have essential water supplies. The taxpayer should never be marginalized, nor should our peer groups in federal, state, and local government. We all rely on one another. I'm concerned that if I named folks personally, I would unintentionally leave some one out. Those living and reading this will know how important they are to me and to all of us—I've told them so. I can say that my parents and my wife were the single greatest asset in our joint success, and they deserve a big thanks.

I think one needs to set aside ego. There are a lot of smart people working unseen in irrigation in the West. A great deal of the success of people whose faces and voices are seen and heard in public can be attributed to the support of those people behind the scenes. Understanding the social psychology of the folks you live and work with is extremely important. I tell folks that I really despise politics. They laugh and say that that's part of my job, and I respond that that doesn't necessarily mean that I like it. It's important to remember that it's not about you. It's about keeping your eye on the prize, delivering the irrigation water, preserving the taxpayers' equity in the irrigation district, and making sure the district survives and prospers into the next century. IL

Daren Coon is the secretary-treasurer and secretary of the board of the Nampa & Meridian Irrigation District. He can be contacted at dcoon@nmid.org or (208) 466-7861.

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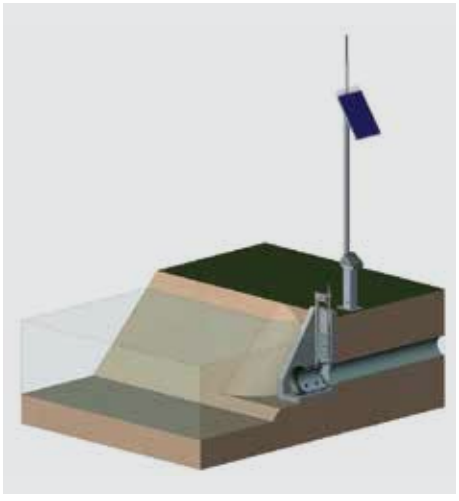

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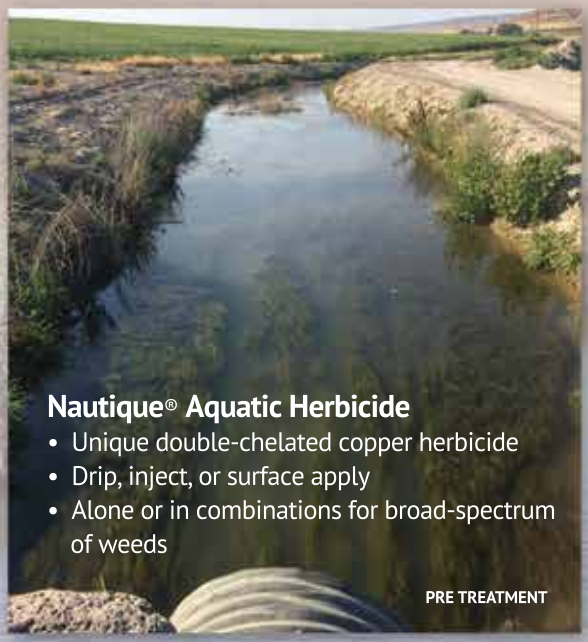

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RH2 Engineering: Finding Ways to Make Irrigation Infrastructure More Reliable and Long Lasting

Construction on the Kiona pump station and intake at KID's Red Mountain Local Improvement District.

The Kiona pump station and intake at KID's Red Mountain Local Improvement District.

RH2 Engineering, Inc., has been providing civil engineering, planning, and environmental services to municipal and irrigation clients across the Pacific Northwest for 40 years. RH2 can provide irrigation district clients with designs for full facility upgrades or evaluations of their assets that allow them to pinpoint crucial pieces of infrastructure to repair or replace. RH2's efficiency-boosting designs include variable frequency drives and automatic controls.

In this interview, RH2 Project Manager Kyle Smith speaks with Irrigation Leader *about his company's services and the trends he sees today in the irrigation infrastructure world.*

Irrigation Leader: Please tell us about your background and how you came to be in your current position.

Kyle Smith: I graduated from Seattle University in June 2008 and started at RH2 right out of college. I worked for 1 year in our Bothell office before transferring over to the Richland office, where I have been for over 10 years. I got my professional engineer license in 2012 and am currently a member of the American Society of Civil Engineers and the National Association of Corrosion Engineers. I've been fortunate to work on many great irrigation projects over the last 10 years, including Sunnyside Valley Irrigation District's enclosed lateral improvements, Kennewick Irrigation District's Red Mountain South Local Improvement District (LID), and South Columbia Basin Irrigation District's Esquatzel pumping plant.

Irrigation Leader: Please tell us about RH2 and its history.

Kyle Smith: We're a full-service engineering firm that specializes in municipal engineering. Founded in 1978, we focus on providing high-quality and high-value services to local government agencies throughout the Pacific Northwest. We provide water, sewer, and irrigation system design; hydraulic modeling; structural and electrical engineering; telemetry control systems engineering; and environmental and geotechnical services. We have seven offices in Washington and Oregon with 120 employees total, 100 of whom are professional engineers and scientists. We are currently working on irrigation projects in Washington, Oregon, and Northern California.

Irrigation Leader: RH2 works on both irrigation and municipal water projects. How do the two differ?

Kyle Smith: There are many differences between the two, including requirements for water treatment, construction seasons, and urban vs. rural construction. Another big difference is that in irrigation projects, we must deal with surface water and open-channel flow within canals and rivers. The variations in canal flow, irrigation demands, and water quality throughout the irrigation season can make designing pump stations and intake structures challenging. Typically, irrigation pump stations and pipelines are designed for larger volumes of water. Some of the pump stations that we design pump more than 100 cubic feet per second.

PHOTOS COURTESY OF RH2.

There's always a focus on water and power conservation with irrigation as well. Canals can be lined or replaced with enclosed conduit systems, both measures that help conserve water. Pumps and controls can be replaced to help conserve power. A lot of the controls that help municipal water systems run efficiently are also included in our irrigation system designs.

Another big difference aside from engineering is the people. People in the irrigation industry are very much invested in their work. Many irrigation district board members are farmers who live in the district. Irrigation supports their livelihood and their communities. I really enjoy working with people who have so much passion and enthusiasm for what they do.

Irrigation Leader: Are RH2's clients mainly irrigation districts?

Kyle Smith: RH2 has a diverse clientele of municipalities and districts. Most of our irrigation work is done in our eastern Washington offices. Probably one-third to one-half of my work is irrigation related; in some years, it may be up to 70 percent of my work. RH2 is currently working with all three Columbia basin irrigation districts, many of the irrigation districts in the Yakima River basin, and some smaller districts in Northern California.

Irrigation Leader: What are the main services you provide to your irrigation clients?

Kyle Smith: We offer full design and contract-administration services during construction for irrigation districts. Lately, we've been working on designing upgrades to electrical switchgears, motor controls, and pumps for irrigation districts in the Yakima and Columbia River basins. Much of their infrastructure was built in the 1940s by the Bureau of Reclamation. It's held up well over the years, but there are electrical, mechanical, and structural components that are starting to wear out. Replacing these aging components gives us an opportunity to make pump stations more efficient. We can add variable frequency drives (VFDs), which can help pump stations react quickly to changing water demands. We can also design supervisory control and data acquisition (SCADA) and telemetry systems that can help districts monitor and operate their facilities remotely. These upgrades all help districts run more efficiently and contribute to water and power conservation.

When we're designing these upgrades, we are mindful of costs and how they'll affect the rates that end users pay. We want to make sure we're planning carefully before upgrades begin and providing the best long-term solutions for our clients.

If an irrigation district is unable to do a full system or facility upgrade, we also can provide a conditional optimization reliability evaluation (CORE), which provides an accurate assessment of the condition of all the district's critical assets. We can identify pump and motor issues that waste energy and reduce overhead costs by identifying preventative maintenance tasks that can be done to avoid equipment failure. We have different methods for doing this, including vibration testing on pumps, motor testing, power quality analysis, thermal imaging, and hydraulic modeling.

Another issue that's been coming up recently is corrosion protection. This is something that a lot of districts don't have in place and may be interested in. It can be a challenge to get our clients to understand the importance of corrosion protection, especially cathodic protection, as it hasn't always been standard in the industry. However, once you start explaining that for a relatively low cost you can extend the life of a metal pipeline by 25 years or more, clients start getting more interested in the technology.

Corrosion protection starts with picking the right coating and lining for your application. This is typically your first layer of defense, especially for steel and ductile pipelines. However, there are always inherent imperfections in coatings and linings that can be caused by improper surface preparation, improper coating procedures, and damage during transport or installation. The second layer of defense is cathodic protection, which helps protect the pipeline from these imperfections. For an irrigation district, this typically involves a passive system with a sacrificial anode bed. The anode bed sacrifices electrons, which migrate to the steel or ductile iron pipeline. Chemical reactions around the pipeline create a barrier, protecting it from further corrosion. It's an interesting process. Cathodic protection is standard in the oil and gas industry and required by the Reclamation on some projects. It's something irrigation districts need to be thinking about, because it can double the lifespan of a pipeline.

Irrigation Leader: Would you tell us about one or two of your recent projects?

Kyle Smith: We're currently working with Roza Irrigation District on pump station upgrades, as it's time for it to start replacing some of its pumps that were built in the 1940s. We started the project by doing a CORE analysis of the efficiency of its existing pumps and electrical components. Then we looked at the replacement costs with in-kind volute pumps or vertical turbine pumps. We also evaluated the long-term costs and efficiencies of adding VFDs to the pump stations. We're now starting to design upgrades for two pump stations based on the results of our assessment. Hopefully, these pump stations will be the templates for the other pump stations in their system.

We also just finished designing a cathodic protection system for East Columbia Basin Irrigation District's EL 47.5 pipeline. The pipeline has approximately 2,800 linear feet of 54-inch-diameter steel pipe, which transitions to 42-inch-diameter PVC pipe with ductile iron fittings as it extends from the pump station. We helped the district design a cathodic protection system for the steel

South Columbia Basin Irrigation District's Esquatzel pumping plant under construction.

South Columbia Basin Irrigation District's Esquatzel pumping plant, complete.

pipeline, ductile fittings, and appurtenances, in accordance with Reclamation standards. The passive cathodic protection system includes sacrificial anode beds, joint bonding, isolation joints, and test stations. These systems are easy to install, and we can teach district staff how to install them with just a few days of training.

Irrigation Leader: Do you work with other federal or state agencies in addition to Reclamation?

Kyle Smith: Since we are typically working with surface water, we usually coordinate with state ecology departments as well as fish and wildlife departments. Depending on funding, we sometimes work with the U.S. Environmental Protection Agency, the National Resources Conservation Service, and the National Marine Fisheries Service. Pipelines usually include coordination with local agencies and state transportation departments. The permitting process for building a new facility or renovating an old facility can include coordination with the state historic preservation office and local tribes.

Irrigation Leader: What other new technologies do you expect to see expanding in the next 5 years or so?

Kyle Smith: I see a lot of wireless communication technologies coming into the industry right now. For Kennewick Irrigation District's Red Mountain South LID project, we evaluated several wireless technologies and ended up selecting a solar-powered, all-in-one radio monitoring system for its deliveries. Cellular modems are also becoming less expensive to operate and really help in remote areas where radios struggle. I think the real-time monitoring of irrigation systems is really going to help districts operate more efficiently.

Irrigation Leader: Does RH2 install SCADA systems as well as the pipelines?

Kyle Smith: We don't install pipelines, but we do provide design services as well as onsite observation and contract administration during construction. We also design, integrate, program, and support SCADA systems for our clients. RH2 recently formed a new limited liability corporation, Control Systems Northwest, which allows us to perform installations of programmable logic controllers and other controls in Oregon; similar capabilities are coming soon to Washington and California.

Irrigation Leader: What is your vision for the future?

Kyle Smith: I see the irrigation industry adopting a lot of the technologies that are currently implemented in the municipal water world. We will start seeing less open-channel flow and more pressurized systems. Some irrigation districts will also have to change the way they operate as urban sprawl continues and they start serving residential customers. I see irrigation districts looking a lot more like municipal water districts in the future. IL

Kyle Smith, P.E., is a project manager at RH2 Engineering. He can be contacted at ksmith@rh2.com.

PHOTOS COURTESY OF RH2.

How to Successfully Use Data Analytics to Make HR Decisions

Human resources (HR) is an important field for any organization, irrigation districts included. Finding the right employees and making sure they are performing at the top of their abilities is crucial to an organization's success. While gut instinct always plays a role in personnel decisions, data analytics are playing an increasingly important role as well. If done correctly, recording and analyzing data about the hiring process and about employee performance can give managers important information about how to improve their organizations' performance.

In this interview, Diane Campanile, the director of human capital management and employer compliance at Lyons Insurance, tells Irrigation Leader *about the promise and pitfalls of collecting, storing, and analyzing data for HR decisionmaking.*

Irrigation Leader: Please tell us about your background and how you came to be in your current position.

Diane Campanile: I received my formal education from West Chester University, Wharton Business School, and Villanova University. After working in HR at both public and private companies, I decided to pursue a career in consulting, where my skill sets would be used and challenged on a regular basis. Lyons Companies provided me with the opportunity to establish a human capital management (HCM) division, Lyons HCM, where I serve as the main contributor for the services provided.

Irrigation Leader: What does that division do in practice?

Diane Campanile: Lyons HCM provides consultative services that offer your organization assistance with employer compliance, employee training, and HR support. The Lyons HCM team works to identify costly HR exposures and to enhance HR processes with services targeted to the specific needs of your business. Lyons HCM also offers an annual series of compliance-focused seminars and webinars that affords professional Society for Human Resource Management (SHRM) recertification credits. Each presentation is carefully selected to address the most common areas of concern or the latest topic of conversation.

Most of the work I do is external to our organization. I conduct HR audits and develop action plan solutions for our clients and work with them through implementation. As one of only a few senior certified SHRM instructors, I frequently conduct training in preparation of certification and offer continuing education for HR professionals with a SHRM designation. I present at and participate in conferences on a variety of HR topics. In November, I had the privilege of presenting respectful workplace training at the annual National Water Resources Association conference in Houston, Texas.

Irrigation Leader: What are the topics that are most in demand for your workshops?

Diane Campanile: Without a doubt, the most popular topic is having a respectful workplace, with particular reference to sexual harassment. Several states have enacted legislation requiring employers to provide training on the prevention of sexual harassment to employees, including special sessions for supervisors. These sessions result in productive conversations. The second most popular presentation in 2019 was on managing your diverse workforce. Today, we have five generational cohorts at work! It can be challenging when not managed properly.

Irrigation Leader: How are data and analytics used to make HR decisions?

Diane Campanile: Capturing information creates data, while analyzing that data allows for predictions, comparisons, and conclusions. When used properly, data analytics can improve hiring decisions, increase employee retention, improve individual and departmental performance, and identify training needs. HR professionals are business partners responsible for attracting and retaining employees. HR analytics can help accomplish this.

Most employers collect data to fulfill regulatory requirements. These data sets include applicant and employee gender, ethnicity, and veteran and disability status.

Some employers collect recruiting data to maximize the effectiveness of their recruiting efforts. The data may cover factors like resource performance, the time required to fill a position, and quality of hire. Analyzing the data on resource performance will allow an employer to determine whether a recruiting resource they used helped them meet their business objectives. If the resource did not, the employer now has the data to support a switch.

Employee performance data like key performance indicators can identify strong performers in targeted areas who can make the difference between hitting objectives and exceeding them. Strong performers should be identified early in their careers so they can be set on a career path for both their and their employer's benefit.

HR professionals also use compensation surveys to determine whether pay levels are competitive enough to attract applicants and retain employees. Surveys are just another form of data analytics.

Irrigation Leader: What are some of the mistakes companies most often make when collecting and analyzing data?

Diane Campanile: Companies make mistakes when they collect the wrong data or apply the right data incorrectly and inconsistently. Especially when stressed, employers may assume that employees are in identical situations and expect identical outcomes.

Irrigation Leader: What organizational and legal factors do managers need to consider before they start collecting data for HR purposes?

Diane Campanile: There are so many considerations that employers would be wise to speak with a certified HR professional about their goals for data collection and how they intend to apply the data.

From an organizational perspective, managers should work with their colleagues to collect data relevant to their areas of responsibility while not placing other areas in jeopardy**.** Legal considerations include local, state, and federal laws. The U.S. Department of Labor sets standards for keeping and maintaining employee information in both written and electronic formats. Companies should follow appropriate guidelines to ensure the compliance of their storage program. They must also be sure to meet Health Insurance Portability and Accountability Act (HIPAA) privacy standards by keeping their systems secure and entering into business associate agreements appropriately.

Data collected and records kept can also create liability. An easy example is copying the documentation reviewed while verifying employment eligibility in the completion of an I-9 form. The I-9 form does not require documents to be copied in order to verify employment eligibility, and doing so may raise risk instead of limiting it. There may be other reasons for an employer to collect copies of one or more of the documents involved, but it is best to keep those documents within the area of intended purpose. A company may be foolish to collect data it will not use and does not need. Employment applications no longer ask for Social Security numbers. If something isn't needed, don't collect it!

Further, it has been argued that candidate testing with a cultural bias may reward knowledge and practices that are found more in some cultures but not in others. This practice may raise risk of a lawsuit.

Irrigation Leader: What are some of the main factors a manager should consider when deciding whether to terminate an employee?

Diane Campanile: Employers need to consult the at-will employment doctrine of their state and would be wise to seek consultation on complex employment terminations. Managers need to consider length of employment, past performance, and whether an employee's performance is likely to improve through progressive discipline steps, including the implementation of a performance improvement plan. A company's progressive discipline policy will likely be addressed in its employee handbook. It is an employer's responsibility to provide all the tools necessary for an employee to be successful. Managers need to work with employees who can and want to improve while transitioning those who do not or cannot. I have seen employers keep employees who have not been successful for 10 years. To do that is to deny that employee the opportunity to be successful elsewhere.

Irrigation Leader: What is the best way for a manager to terminate an employee?

Diane Campanile: Leave the employee with their dignity intact. Managers control the narrative and should provide the message without ridicule and insult. Be concise in your message and only discuss the termination with those who need to know. Be respectful. If you are terminating an employee, schedule a meeting in a private room or area. Employees who feel they have been disrespected or embarrassed are more likely to sue their former employer.

Irrigation Leader: For an organization that doesn't have a written employee handbook, what advice do you have about drawing one up?

Diane Campanile: Make sure you work with a certified HR professional to create an employee handbook. When you put something in writing, follow it. If you're not going to follow a standard procedure, you're better off not developing it. If I know that an employer is not committed to handling things in a standard fashion, I'll create a handbook that is compliance related only. I'll cover equal employment opportunity, the Americans With Disabilities Act, and any harassment or paid-time-off policies that are established by local, state, or federal law.

Irrigation Leader: What are examples of things that companies tend to put in their handbooks and then struggle to follow up on?

Diane Campanile: Annual performance reviews. These policies are well intended, but if they set an expectation that is not met, it demotivates employees. Another problem is when progressive discipline policies are used inconsistently for similarly situated employees. Employee A will go through the steps of progressive discipline while employee B is dismissed immediately for the same infraction. IL

Diane Campanile is the director of human capital management and employer compliance at Lyons Companies. She can be contacted at lyonshcm@lyonsinsurance.com or (844) 596-6742.

PHOTO COURTESY OF LYONS INSURANCE.

WE'RE WORKING TOGETHER TO FIX

THE PROBLEM AT BATEMAN ISLAND

A man-made causeway at Bateman Island is blocking flows at the confluence of the Yakima and Columbia Rivers, leading to warm temperatures west of the island. This warm water is ideal for invasive species that prey on juvenile salmon in the spring and make it difficult for adult salmon to swim upstream in the summer.

Yakima Integrated Plan partners are working with stakeholders and the community to develop a solution that allows flow around the island, improves water quality, provides recreational access and opportunities, and protects existing boat moorage and launch sites.

December 2018: U.S. Army Corps of Engineers announced the review of Bateman Island as one of its environmental restoration projects under its section 1135 authority.

August 2019: The Washington Department of Fish and Wildlife reached agreement with the Army Corps on sponsorship and cost share for the Section 1135 process.

For more information, contact
Charles Freeman, District Manager
509-586-6012 ext. 104
www.kid.org

KENNEWICK IRRIGATION DISTRICT

In-Situ's Flow Meters: A Practical Choice for Farmers and Irrigators

An In-Situ meter installed in a cotton field.

Founded 40 years ago and originally focused on water level measurement for the mining industry, the Fort Collins, Colorado-based company In-Situ has recently moved decisively into the fields of flow monitoring and water quality solutions for industrial, agricultural, wastewater, and storm water clients. Recent research and development work and strategic acquisitions, including that of the Australian company MACE, have filled out In-Situ's array of ultrasonic flow meters, data loggers, and controllers. In-Situ's MACE flow meters and Doppler A/V sensors are particularly promising as practical alternatives to mag meters for farmers and irrigation managers.

Timothy Hicks is a flow expert who recently became a business development manager for agriculture at In-Situ. In this interview with Irrigation Leader, *Mr. Hicks discusses the advantages of In-Situ's flow meters for agricultural customers.*

Irrigation Leader: Please tell us about your background and how you came to be in your current position.

Timothy Hicks: I'm an engineer by training. I grew up in Canada and moved to Seattle to work in the Alaskan fishing industry. After that, I got a master of business administration at Seattle University and took a job as head of marketing for a supplier to the heavy-duty trucking industry. I then worked in business consulting for 11 years, after which I started and ran FlowWorks, a municipal data management company, for 5 years. After that, I did municipal flow monitoring for 5 years, first with Hach and then with ADS. I joined In-Situ in July 2019.

Irrigation Leader: Please tell us about In-Situ and its history.

PHOTO COURTESY OF IN-SITU.

Timothy Hicks: The company started off in Laramie, Wyoming, as an engineering firm and did a lot of work for mining companies, including groundwater monitoring. As part of that, it started building its own groundwater monitoring equipment and introduced the first in-well water level data logger. More than 10 years ago, the company moved to Fort Collins, where it continues to thrive and build a global presence in the groundwater, surface water, water flow and process markets.

Irrigation Leader: In-Situ recently acquired the Australian company MACE. Would you tell us about that company?

Timothy Hicks: MACE is a flow-monitoring instrumentation company that has been in business since 1968. In-Situ purchased MACE in 2017 and has been working with its small but strong engineering team to upgrade its equipment. We're also bringing In-Situ's outstanding service model to the MACE product line. In-Situ manufactures its equipment in the United States, and eventually MACE equipment will be built in the United States as well.

Irrigation Leader: Please tell us about In-Situ's top products and what the company is doing now.

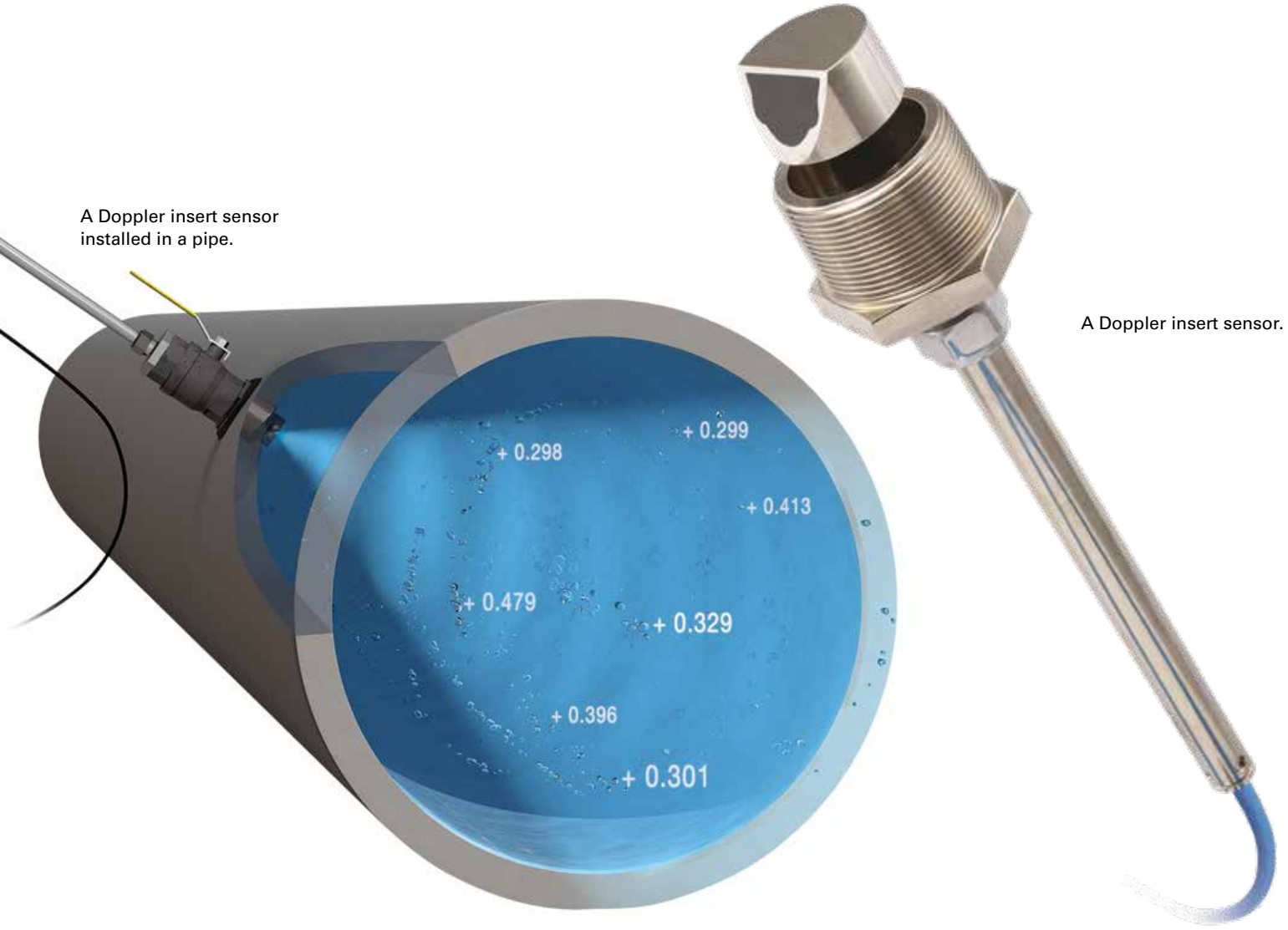
Timothy Hicks: In-Situ has three product lines other than flow. One is groundwater monitoring equipment, which is a series of sensors that go down into well bores. At their most basic, the sensors monitor groundwater levels and can be used to deduce the flow and volume available in a well. The second is a line of surface water monitoring equipment for spot sampling and continuous monitoring of a wide range of parameters. These units are also designed to fit down a well. They are less than 2 inches in diameter, about 18 inches long, and can monitor up to 4 different parameters. These products help a lot of people, including farmers and irrigation district managers, to understand what chemicals are in their supply and discharge water. In-Situ also recently acquired ChemScan, which manufactures a popular line of equipment: process analyzers. These are online, continuous-flow chemical analyzers that are used in industrial and wastewater treatment plants. In addition, In-Situ has developed industry-leading software for viewing, storing, managing, and sharing monitoring data, and we will soon debut a next-generation cellular and satellite telemetry device.

Irrigation Leader: What trends in the industry is your company preparing for?

Timothy Hicks: Water conservation is giant. We are coming to the end of our free and open water resources. While there is often a fair bit of grumbling, folks are slowly coming to terms with the fact that we will have to conserve and share. That's one of the things that attracted me to In-Situ: Our devices allow irrigation managers and farmers to get a handle on the amount of water they're using. There have always been electromagnetic flow meters, also known as mag meters, but they're expensive. Our solution costs a lot less. It is a practical way for farmers and irrigation managers to retrofit their existing systems and get a handle on their flow volumes.

Irrigation Leader: How does your technology differ from a mag meter?

Timothy Hicks: A mag meter is a flanged section of pipe fitted with four sensors around its perimeter that is installed in an existing pipe. These meters are heavy, so you may need to install a structure to support them. The meters



A Doppler insert sensor installed in a pipe.

A Doppler insert sensor.

themselves are expensive, and the installation process is time consuming. Our meters, by contrast, go into a 2-inch pipe coupling that's installed on the outside of a pipe. They can be installed on a plastic, steel, or concrete pipe. The MACE meter costs about half as much as a mag meter to buy and install and can be installed with hand tools. Managers and farmers are getting great results with it. One irrigation manager told me he went from using an average of 6 acre-feet of water per growing season to 2½. He credits MACE meters and the visibility that they've given him for that change. Other things had to be done, too, but it started with putting in meters and figuring out where water was going, where it was being wasted, and which farmers were using more than they needed to. A measuring and monitoring program combined with an education program and some financial incentives cut his water use significantly.

Irrigation Leader: What is the price range for these meters?

Timothy Hicks: Our meters come ready to install and cost between $4,500 and $6,500, depending on power and communication requirements. Installation involves digging down to the pipe, but once that's done, installation only takes a couple of hours. The telemetry system, which pushes data to a data platform, is easy to set up. A solar panel can be added to create a complete off-the-grid system.

Irrigation Leader: What is your message to irrigators? What should they know about In-Situ?

Timothy Hicks: MACE meters are a practical, sensible solution for measuring irrigation water flows. Water flow is one of the few things that can't be measured directly: You have to measure velocity and then use the area of the pipe or channel to calculate flow. MACE meters use the Doppler principle to directly measure average water velocity to calculate flow. The result is a relatively inexpensive, practical solution for doing something difficult. It can be an effective starting point for getting a handle on your water use and reducing costs. IL

Timothy Hicks is a business development manager for agriculture at In-Situ. He can be contacted at tshicks@in-situ.com.

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WSWRA Honors Members With Awards at Annual Conference

By Tom Myrum

Darvin Fales presents Dave Solem with the WSWRA Water Resources Leadership Award.

Lori Brady presents Larry Martin with the WSWRA Distinguished Service Award.

Rick Dieker presents Jim Milton with the WSWRA Distinguished Service Award.

The Washington State Water Resources Association (WSWRA), the coordinating agency for irrigation districts in Washington state, honored three of its longtime members at its annual conference awards luncheon on December 5 at the Davenport Hotel in Spokane, Washington.

The WSWRA Water Resources Leadership Award was presented to Dave Solem by past WSWRA President Darvin Fales. Dave is the manager of the South Columbia Basin Irrigation District (SCBID), located in Pasco, Washington. Dave has been manager of the SCBID since 2010 and had previously been the manager of the Klamath Irrigation District in Klamath Falls, Oregon, for more than 28 years. Dave is a past president of WSWRA and is also a past president of the Oregon Water Resources Congress, where he served two terms as president. Dave represents WSWRA on the board of directors of the National Water Resources Association (NWRA) and is a cochair of its environmental task force. Dave also serves on the advisory committee of the Family Farm Alliance.

WSWRA honored attorney Larry Martin with its Distinguished Service Award. The award was presented by Sunnyside Valley Irrigation District (SVID) Manager Lori Brady. Larry represents numerous irrigation districts, water companies, municipalities, and private individuals in Washington and Oregon, including SVID and the Roza-Sunnyside Board of Joint Control. Larry is a partner in the firm Halverson Northwest, based in Yakima, Washington. He has been practicing law since 1989 and has spent three decades working on issues related to the Yakima River adjudication along with his diverse natural resources– and local government–based practice. Larry serves on the WSWRA and NWRA boards of directors. He is also on the WSWRA executive committee and is a cochair of the NWRA litigation review and regulatory committees.

The WSWRA Distinguished Service Award was presented to Jim Milton by Yakima-Tieton Irrigation District Manager Rick Dieker. Jim received his undergraduate degrees from the University of Washington in naval science and civil engineering and his master of science in civil engineering from the University of Washington. He was a commissioned officer in the U.S. Navy and served on the USS Manatee in Vietnam and on the USS Tulare as a boat group commander. Jim was later employed by the Washington State Department of Ecology for 26 years. He earned a second master's degree in business administration from City University. Jim has served as the executive director of the Tri-County Water Resources Agency and then the Yakima Basin Water Resources Agency and has been a director for the YTID since 2005. Jim has been a lifelong leader and advocate water resources issues.

WSWRA recognizes, commends, and thanks its award recipients for all their efforts on behalf of the association and water resources in Washington State. IL

Tom Myrum is the executive director of the Washington State Water Resources Association. For more information about WSWRA, visit wswra.org.

PHOTOS COURTESY OF WSWRA

Are Goats the Answer to Your Maintenance Needs?

By Karen Ray

Goats work the face of North Dona Ana Dam.

The term *goatscaping* often elicits a quizzical look and a half smile, followed by the question, "What?" While the word isn't in the dictionary and has nothing to do with scapegoats, it's well known among land managers. Goatscaping is the centuries-old technique of using goats to maintain property.

The four-legged critters are hardy, notorious for eating everything, and can be easy to work with as long as you remember their streak of curiosity. They're experiencing a revival of sorts, showing up as exercise buddies, pets, and urban farm stars. Worldwide, they work in a wide variety of settings, controlling and maintaining vegetation in parks, forests, and industrial locations. As they chew their way through overgrown, hard-to-access areas, they provide multiple benefits.

Goats' strengths lie in their ability to completely digest weeds, brush, trees and their seeds. They eat younger trees, grinding up everything above ground and then digging up the roots. They eat woody plants and weeds that cattle and sheep eschew and can even eat some poisonous plants. Their grinding consumption and unique digestive system destroy the germination ability of nuisance trees like Chinese elm. Anything bigger than small grass seed has a tough time traversing their systems, ensuring that the animals' manure helps to both reseed and fertilize beneficial plants in the enriched ground. This is a great advantage over mechanical weed removal devices like mowers and weed eaters that merely knock down and reseed problem vegetation.

Goatscaping overgrown areas can also provide vital protection against fire. California has used goats across the state to aid in brush control. Other states are taking notice of this alternative method for controlling problematic vegetation in a wide variety of areas.

New Mexican farmers recall that, historically, goat and sheep herds worked not only in the annual cleanings of acequias (community ditches) but also took part in canal and drain maintenance throughout the growing season. Elephant Butte Irrigation District (EBID), which is over 100 years old, is quite familiar with the constant task of staying on top of weed and brush control. Zack Libbin, EBID's district engineer, explains, "Maintaining our 600 miles of canals, laterals, and drains is an ongoing issue. It's very challenging. We're trying to find more environmentally friendly, green ways to accomplish this. Going back to the old method will hopefully be a good solution."

EBID began a two-part pilot project during summer and fall 2019 in two areas with vegetation problems. EBID Manager Gary Esslinger's theory is that utilizing these voracious temporary employees to maintain district sites will reduce equipment and employee costs while improving infrastructure efficiency. "Their hooves working the ground can also help improve soil health and reduce erosion, creating a sustainable management environment," adds Mr. Libbin.

PHOTOS COURTESY OF EBID

EBID's first goatscaping site was the Park Drain near New Mexico State University (NMSU) in Las Cruces. In July 2019, the district contracted with a local goat herder, Jake Perrault of Green Machine Goatscaping, to provide about 70 goats to remove and consume unsightly vegetation within a 1-acre section of the drain.

Mr. Perrault is a native New Mexican with local family history dating to the 1800s. His affinity with animals, a vital trait for those working with livestock, started in childhood. He began working with goats to help his infant son, who suffered from milk allergies. "He was raised on goat milk. He would drink at least four goats in a week!" he laughs. He also discovered that his goat herd was an excellent way to reduce cover for predators intent on stealing his chickens.

Once turned out into the drain, the goats treated the steep banks and overgrown vegetation like their own personal playground, and in weeks had eaten it down to nothing. The herd was a strange sight juxtaposed with NMSU's new Marriot Courtyard hotel, which stood nearby, but the goats grazed diligently, unfazed by the surrounding community, roads, and businesses.

"They are 24/7 eating machines," Mr. Perrault says. He monitored them daily, supplying fresh water and supplemental food and adjusting animal numbers as needed. His carefully selected herd is composed primarily of goats, with a few mixed-breed sheep added in to provide a thorough vegetative cleaning. Sterling Grogan, a senior advisor to Carpe Diem West, says, "The sheep's dietary preference is 75 percent grass, 25 percent other stuff. Goats' dietary preference is the opposite: 25 percent grass and 75 percent forbs and herbaceous." The result is something like turning teenage boys loose on an all-you-can-eat smorgasbord.

Mr. Grogan's extensive experience in the land-management field includes using goats to control salt cedar and consultation on alternative methods of land management and rehabilitation. He acknowledges that "it's not absolutely clear that goats are cheaper than chemicals. It might cost a little more, especially initially when you're learning how to work the business properly." Where goats have the potential to really shine as a control method is in the area of longer-term reduction in regrowth and sustainable site improvement. Using goat herders from within an irrigation district's own state, he points out, can have a positive economic effect on the area along with the environmental benefits it brings.

EBID board member Joe Paul Lack was another goat milk aficionado as an infant and credits it for saving his life. He operates a long-running farm in the Rincon Valley near Hatch, New Mexico, right in the heart of chile country. Johnson grass was a big problem on the farm, and the previous owners

EBID's Zack Libbin poses beside the herd.

Perrault with part of his herd.

The Park Drain before cleaning.

The Park Drain, eaten clean of overgrowth.

regularly used sheep to clean their ditches. He says, "You could hoe it today and it'd come back tomorrow. Those old sheep would eat it down really nice and close and that water would flow through those dirt ditches just beautifully." Another advantage to using living mowing machines was that they served as a type of economic insurance: "One year, they had hail and no crop, so they sold the sheep to make their payment."

Stage 2 of EBID's pilot project involves North Doña Ana Dam, just north of Las Cruces, one of the 25 flood control dams the district is responsible for maintaining. Many of these structures were built in the late 1950s and early 1960s and have surpassed their 50-year design life. However, they are still relied on to protect not only agricultural land but also an increasing number of residential areas. Staying on top of their maintenance is crucial to public safety.

Stage 2 began in October 2019 and had similar requirements in terms of fencing, supervision, and herd density. The site is divided into two separate test areas, the first a 4-acre section requiring intensive grazing for soil disturbance, grass seed distribution, and woody vegetation removal. The goats' hoof action on the dam's top and face will aid in repairing the large number of erosion rills. The second area is slated strictly for woody vegetation removal. In this part of southern New Mexico, fighting the encroachment of extremely long-rooted brush like mesquite is an ongoing battle.

Woody vegetation can be particularly damaging to dams, canal banks, and drains. Mr. Libbin explains that roots can create natural flow paths through these structures, allowing water to enter and erode from within the embankment. To prevent surface erosion down the dam face, the district broadcast native grass seed at the time of goatscaping and included it in the goats' feed. Carefully regulated supplemental feeding both encourages the animals to consume the woody vegetation and produces adequate organic matter to fertilize the broadcasted seed. Reducing onsite brush and trees also gives natural predators like hawks and coyotes easier access to burrowing rodents, which can damage the structures' integrity. The district hopes that this maintenance process will help keep the aging dam functional.

Good communication throughout the project is vital in evaluating how long to keep the animals in a specific location and when to move them. It's important to clearly delineate where the animals will be allowed on the property and to ensure that the goat herder is aware of the structure's function as well as of any potential problems. Managers and herders should expect to work together to monitor the project and ensure that it is proceeding as planned. Grogan stresses the importance of requiring goat herders to have "solid, 24/7 security for both the goats and the surrounding area" as a safeguard.

In his work for EBID, Mr. Perrault was responsible for all onsite fencing and goat supervision. In the United States, herds are typically supervised by a combination of human and animal guards, the latter including dogs, llamas, and donkeys. It's important to be aware of all applicable regulations regarding animals in designated project areas. Mr. Perrault trains and selects his herd to respect the fence and to have easygoing personalities.

With goatscaping, as with many things in life, timing is everything. Turning the goats out to munch through an overgrown area is best done when the plants are tender and weak, prior to blooming and setting seed. However, goats can be used successfully on a maturely vegetated area for the initial cleanup of undergrowth. The key is to follow that initial cleanup with timely targeted repeat sessions.

Grogan's observations of goatscaping sites in New Mexico and southern Colorado lead him to recommend, "Bring them back to your site a couple of times during each growing season for three consecutive growing seasons. At the end of the third season, the action of their hooves and their grazing will have stressed all the vegetation on a particular site. They eat everything!" This gives beneficial native grasses a chance to compete for scarce water resources and adds nutrients to the soil.

Goatscaping can be an effective tool for irrigation districts across the country. It can reduce the use of weed control chemicals, improve soil condition, and improve the maintenance of irrigation systems, thus facilitating more efficient water delivery and drainage. It may also enable irrigation districts to handle simultaneous operation and maintenance tasks when they would not otherwise have enough employees. The EBID team will continue to analyze the rehabilitation results of the Green Machine goat crew. This low-tech approach may prove to be a viable long-term method of keeping its system free of unwanted vegetation in an environmentally sustainable manner. IL

GOAT FACTS

Lifespan: 15–18 years
Gestation period: 150 days
Produce 2 kids on average
Able to digest and detoxify noxious plants
Resistant to bloating
Ruminant digestion
Goat milk is easy to digest
Herded for thousands of years

Karen Ray is a media consultant for EBID. She can be contacted at ray.karen7@gmail.com. For more information about EBID, visit www.ebid-nm.org.

PHOTO COURTESY OF EBID.

Dawson Tire's Mighty RhinoGator Tire

Dawson Tire and Wheel, based in Gothenburg, Nebraska, is well known for its irrigation tires and wheels. Its most famous product is quite recognizable: the bright green polyethylene RhinoGator pivot tire. The solid RhinoGator will never go flat or fill with water or mud, and it is also UV protected.

In this interview, Eric MacPherson, the founder and chief executive officer (CEO) of Dawson Tire and Wheel, speaks with Irrigation Leader *about his company and how he developed the RhinoGator tire.*

Dawson Tire's RhinoGator tire.

Irrigation Leader: Please tell us about yourself and your company.

Eric MacPherson: I was born in Gothenburg, Nebraska, and grew up working for my aunt and uncle on their family farm. Gothenburg is a little town of about 3,500 people off Interstate 80, and we have always been farmers and cattlemen. I was married in 1996, had a little boy, and quickly found out that making 10 bucks an hour wasn't a successful way to meet my family responsibilities. It can be helpful to have people in your life who kick you in the backside and move you along your journey in life. In my case, it was my uncle Dale, whom I was working for and who was also a close friend and mentor of mine.

I sat down with him one Saturday and asked him what was going to happen with his farm. He had three daughters who were not interested in it. He'd been through the 1980s, which meant he wasn't an especially prosperous farmer, and he said to me, "Eric, your future's not on the farm." Nevertheless, we had often commented that Gothenburg needed a good tire shop because the service offered by existing shops in the town was poor. There was a co-op; another independent shop had closed 3 months prior. Apparently, that business had been shut down by federal officials in response to tax-withholding irregularities. We turned to discussing whether I should look into opening a tire shop.

On Monday morning, I was out feeding cattle, and Dale turned up around 11:00 saying that we needed to go home and get cleaned up for a meeting with the guy who had owned the tire shop before it closed down. At 1:00, we met with this gentleman, who offered to sell the building and all the inventory and equipment for $35,000. By the end of the month, I was in the tire business. I never actually went to college, I didn't know business, and I didn't even know what an accounts receivable ledger was. Thankfully, my wife did. With a lot of prayer, faith, and hard work, I jumped in.

We started our business in May 1998, and it soon became clear that agriculture was going to be the backbone of our business. I loved that because I'm passionate about all things agriculture. In November, I hired my first employee, and I bought our second service truck by Christmas. In addition to my employee and me, my dad, who was retired, would come in and watch the shop while we were on calls. We outgrew that little building after only 5 years and took another leap of faith and built a new building. It was 84 by 100 feet in size with two semi bays, four car bays, a nice office, and a showroom. We were in that building until 2012, when we outgrew it.

We had hired a lot of really good people, but they were outgrowing the business. I knew we had to get past the regional business level. One option was irrigation tire sales. The tires and wheels on the market at the time went for about $375, and I thought that I could do better. That was our first foray into big business in Nebraska and beyond, and we decided at that point to get out of the local retail and automotive tire business and focus solely on agricultural tire–related products and services. I hired a dedicated salesman, and in 2013 we moved into a larger building. It is 20,000 square feet on 10 acres.

Irrigation Leader: Tell us about your business today.

Eric MacPherson: Today, we have around 45 employees. In addition to our headquarters in Gothenburg, we have a location in Holly, Michigan, just north of Detroit, and an inventory facility in Rosetown, Saskatchewan. About 25 percent of our business is in irrigation tire and wheel sales and about 50 percent of our business is selling to implement dealers in the United States and Canada. That is the foundation of our business, and it is where we see the most growth in the long term. A big part of that segment of our business is simply helping implement dealers sell equipment. For example, suppose a dealer has an S-670 combine on their lot with single wheels and tires, and a customer comes in and says they want duals. We sell the implement dealer the dual-package tires, wheels, axle extension, drive shaft extension, ladder extension, spacer rings, and anything else they need. We come up with a trade deal, put the new parts on a pallet, and ship them out, and the dealer ships us back the parts they are replacing. We eventually sell those to other implement dealers or farmers from around North America. Today, I'm sitting on $4 million worth of traded tires and wheels.

Irrigation Leader: Tell us about your products.

PHOTOS COURTESY OF DAWSON TIRE AND WHEEL.

Eric MacPherson: We have our own brand of irrigation bias tire, which is called Vortex. In 2014, we had a light-bulb moment. One of my guys suggested using radial tires in irrigation. The construction of a radial tire means that it leaves a shallower track. Whereas bias-ply tires leave a 6- to 12-inch-deep track, radial tires, due to their wider configuration, leave only a 1- to 2-inch-deep track. However, I said that they were too expensive: The typical radial tire of a size comparable to the 11.2-38, which is a common pivot size, is three times the price of a bias-ply tire. But the question made me stop and think.

I had a great relationship with Trelleborg, a company that was trying to break into the U.S. market. I called the company up and laid out the challenge of building three sizes of tires with radial technology in a particular price range. Trelleborg built us a tire that was priced approximately 30 percent above bias-ply tires, and they were accepted in the industry. That readily solved two of the three big issues tied to any pivot tire: They got stuck a whole lot less and their footprint was 60 percent bigger than that of a bias tire in the same size.

The radial-ply tire is our biggest seller today. We worked out a deal with Lindsay Irrigation in which they promote the Trelleborg brand with us as a partner. They buy thousands of radial tires on wheels. We sell other brands, too.

Irrigation Leader: What is the difference between bias-ply tires and radial tires?

Eric MacPherson: Bias-ply tires consist of multiple rubber plies overlapping one another in a way that makes the tire crown and sidewalls interdependent. With radials, the tire is constructed in a way that allows the sidewall and the tread to function independent of one another, leading to more flex and a wider track. Their much larger footprint on the ground leads to less downward pressure and a shallower track.

Our solution has really taken off in the Pacific Northwest, particularly with potato farms, because the combination of heavy irrigation on soil with high concentrations of volcanic ash insists on a light track response. Our solution works really well up there. It also sells well across the United States and Canada.

Irrigation Leader: Please tell us about your RhinoGator tire and how it was developed.

Eric MacPherson: As we focused on irrigation tires and wheels, we found out pretty quickly that irrigation pivots have three main problems: Their tires go flat, they get stuck, and they leave ruts. Depending on location and farming practices, those three issues are of varying importance. Running flat is a big deal because it causes damage to equipment, fields, and crops and can also result in a pivot getting stuck, particularly in sand hills or if you're going through a slough.

A few years ago, we described all the issues of existing polyethylene tires to a friend who was familiar with the plastics industry and rotomolding and to some rotomolders and designers. They ultimately came up with a design that we thought would work. You'll laugh at my testing: I went to Fairbanks and bought an old manure spreader with the same bolt circle as a center-pivot gearbox. I put these newfangled plastic tires on it and loaded it up with about 4,000 pounds of gravel to replicate the weight of a center-pivot tower. Unfortunately, it didn't work. That was a big disappointment, especially because one of those molds costs $25,000. We ended up going to a different designer.

The RhinoGator pivot tire is a rotomolded polyethylene tire that is designed in two C-shaped halves that bolt together onto a standard pivot rim. The wall of the tire is approximately half an inch thick and is designed to handle the load and torque of pivot irrigation applications without breaking. The nondirectional tread design is designed to minimize soil disturbance as much as possible while maintaining maximum traction and lateral slippage. We made the tires green so that everyone would recognize them. We also use a small percentage of corn plastic in the mix to support farmers.

Another of the problems with plastic tires is that they would slip on their rims in high-torque situations. One day, we asked why we couldn't put something in between the two halves. We designed the no-slip plate to go between the two halves of the RhinoGator tire. That solved the problem of the tires slipping on the rim.

The tires are now manufactured in Littleton, Colorado. We have sold thousands of them. There are some soil types where they just do not work—heavy gumbo soils that need flotation tires, for example—and some situations in which they do not work, such as when you're tilling the soil or putting down a lot of water. They work best in sandier soils with less water. If you're putting a half inch of water down in western Kansas, it works beautifully.

Irrigation Leader: The plastic is UV protected, correct?

Eric MacPherson: Yes. We worked with the manufacturers to increase the UV protection of these products. We insisted on even our bias and radial tires being better than those of other manufacturers on that point, because UV is the central challenge for irrigation tires' longevity. We have the highest UV protection package. We actually went to Australia to find out how plastic is made there, because we knew that UV in Australia was something like five times higher than it is in the United States. IL

Eric MacPherson is the founder and CEO of Dawson Tire and Wheel. He can be contacted at eric.macpherson@dawsontire.com or (888) 604-3403.

DIAMOND PLASTICS®
CORPORATION

Serving the AG community with PVC pipe through 60”

MISSION:

For over 35 years, Diamond Plastics has been passionate about gasketed PVC pipe for water, sewer and irrigation applications. We take pride that our pipe is stringently tested and widely trusted throughout the industries we serve. But we know our customers also depend on the personal support we provide from initial design through acceptance testing.

Diamond Plastics’ corporate philosophy is based upon continuous improvement through industry participation. Our staff is involved with continuing education programs for the design community, industry specific committees such as ASTM, AWWA, CSA and HSB. In addition, Diamond Plastics has continuously supported the PVC Pipe Association for over 20 years to further the educational tools of our clients.

Besler Industries' Durable Pickup Flatbeds

A pickup equipped with Besler Industries' flatbed.

Nebraska-based Besler Industries is a family-owned company that builds bale loaders, pivot track closers, tillage equipment, and other machines well known to irrigated farmers. Another of its most popular products is its pickup truck flatbed. The flatbeds are customizable and can accommodate a number of modular boxes according to the user's needs. Best of all, they're so durable that they often outlive the trucks they're installed on. Besler's flatbeds will be of interest to any irrigation district or organization with a fleet of pickups.

In this interview, Herb Besler, the owner of Besler Industries; Roland Besler, the production manager; and Cliff Kester, the inside sales manager, speak with Irrigation Leader *about the many advantages of the company's flatbeds.*

Irrigation Leader: Please tell us about Besler Industries and its history.

Cliff Kester: Besler Industries is located in Cambridge, Nebraska. Herb Besler started the company in 1973. He started out making loading chutes and corral panels. What really got him going later on was stover wagons. At the beginning, the company was just Herb and one other guy. He also had two investors. Now, we average around 25 employees.

Irrigation Leader: Herb, would you tell us about your background?

Herb Besler: I grew up on a family farm near Bison, South Dakota. I came to Cambridge, Nebraska, in April 1963, when I was 19 years old. I got a call from Walt Dewey, the manager of the new alfalfa mill being built in Cambridge, who asked if I would come work there and help get the mill ready for the first cutting of alfalfa. After that, I worked as a mill operator for a year and then as a field foreman, keeping the equipment running in the field. I did a little welding, both on the farm and when I worked at the alfalfa mill. I moved to Grand Island, Nebraska, in fall 1966. While I was there, I worked for the New Holland Combine Factory as a welder. I joined the Army Reserve in February 1967 and did basic training and advanced individual training. After

PHOTO COURTESY OF BESLER INDUSTRIES.

that, I moved back to Cambridge, and in June 1967 I went to work for Lester Johnson of Johnson International. I was a tractor mechanic there for 5 years. In April 1973, I went into business with two other partners, and we started a manufacturing company building farm equipment. One and a half years, later I bought the two partners out and started Besler Industries, Inc.

Irrigation Leader: Flatbeds for pickup trucks are a growing trend in agriculture. What features set your flatbeds apart from others in the market?

Cliff Kester: The module boxes set us apart from the others. On most other flatbeds, the boxes on top or underneath are welded into the bed or onto the bed. That limits your ability to customize the bed. On ours, if you want to add a welder or another type of box up front, you can still get the full utility bed. The other advantage is that if the bed suffers damage at some point, you can remove the box and fix or replace it.

Irrigation Leader: Do you make your boxes?

Roland Besler: Yes, we make all our boxes. There was a guy in McCook who bought a skirted bed and then bought the rest of the boxes the next year. You can have a full contractor bed and add to it a year down the road so that it looks just like the fully dressed-up one that we sell. You can add as you go. That is something nobody else offers.

Irrigation Leader: What gauge of steel do you use for your boxes?

Roland Besler: Eleven gauge, which is ⅛ inch or .120 inch. Most competitors use 14 gauge, which is .075 inch.

Irrigation Leader: What are the advantages for an irrigation district of using your flatbeds on its vehicles?

Roland Besler: A full contractor bed would allow district employees to haul all their tools and equipment. Our flatbeds are durable and adaptable. They can fit any set of needs. Their durability means that they are a good investment. The flatbed can outlast the truck it is on. We have people who buy a new pickup and switch the bed over. There are flatbeds from the early 1990s that are still running around.

Cliff Kester: They can also save money on insurance. Typically, the insurance on a flatbed truck is much less than it would be if you had the standard box on it.

Roland Besler: To replace the box on your pickup is actually more expensive than buying a flatbed and putting it on. With my old insurance company, I reduced my rate from $125 a month to $75 by putting a flatbed on a newer pickup. If your truck gets hit when it has a flatbed, you're not going to have as much damage. Also, if it hails, you're not going to get hail dents on a bed. That's why the insurance goes down,

Irrigation Leader: What is the expected lifespan of your flatbeds?

Cliff Kester: Some of the first flatbeds we made in the early 1990s are still going. In areas with more salt, they may not last as long, but in general they're very durable.

Irrigation Leader: Some districts have lots of pickups. Do you offer special rates for group sales?

Roland Besler: For something like that, we would have group sales.

Irrigation Leader: How many of your flatbeds would fit on a standard tractor-trailer?

Cliff Kester: You can stack them 7 high and you can usually get 3–4 rows, so around 20–25. If there are a lot of toolboxes, you can probably only fit a half dozen. Sixteen is standard on the bale beds. We could go higher—we used to do 20—but we've capped the number out of concern for safety during loading and unloading.

Irrigation Leader: What is the best way for people to contact you for more information?

Cliff Kester: Calling is the best. We can be reached at (308) 697-4698. The contact section on beslerindustries.com is another good way to contact us. IL

Herb Besler is the owner of Besler Industries, Roland Besler is the production manager, and Cliff Kester is the inside sales manager. For more information, visit beslerindustries.com.

Irrigation Leader

Does your irrigation district have a job listing you would like to advertise in our pages? Irrigation Leader provides this service to irrigation districts free of charge. For more information, please email Kris Polly at kris.polly@waterstrategies.com.

ABERDEEN-SPRINGFIELD CANAL COMPANY
AUTOMATION AND INFORMATION TECHNOLOGY TECHNICIAN

Aberdeen-Springfield Canal Company is seeking applicants for an Automation and Information Technology Technician. We are a 109-year old canal company that seeks long-term employees to join our dedicated team who are responsible for delivering irrigation water to 62,000 acres in Bingham and Power Counties.

Salary: $15.00/hour
Deadline: Until filled

DUTIES/ RESPONSIBILITIES

- SCADA: Participate in the design, installation, and maintenance of remote monitoring and gate control systems.
- Utilize Campbell Scientific data loggers and CRBasic programming language. Training available as needed.
- Maintain Control and storage servers.
- Create and modify operator control screens.
- Maintain wireless communication system. This includes wired and wireless routers, Antennas, and power systems.
- Understanding of internet routing and wireless communications a plus.
- Knowledge of Mikrotik hardware and RouterOS a plus. Training available as needed.

EXPECTATIONS/ REQUIREMENTS

- Two-year degree in an electronics-based discipline such as Electronics Engineering, instrumentation, automation or comparable and demonstratable work experience.
- Valid Idaho Driver's License with no restrictions.
- Ability to lift 70 lbs, ability to climb to and work at heights up to 120 feet, frequent night and weekend work may be required.
- Additional duties as assigned by the General Manager or Foreman.
- Able to work independently and as part of the team.
- This position is on call 24 hours a day, 7 days a week during the irrigation season (March-November).
- Applicant must live within 30 minutes of the ASCC System (Aberdeen, American Falls, Blackfoot, Pocatello) or be willing to relocate.
- Veterans are encouraged to apply and will be given preference over equally qualified non-veterans.

FOR MORE INFORMATION:

Send complete resume and list of references to:
Idaho Department of Labor 450 N. 5th Pocatello, ID 83205
Or by email to: pocatellomail@labor.idaho.gov
Or by fax to: (208)232-0865

PECOS VALLEY ARTESIAN CONSERVANCY DISTRICT
WATER RESOURCE SPECIALIST

Salary: Dependent on Experience
Deadline: Until filled

CHARACTERISTIC DUTIES AND RESPONSIBILITIES

Under the direction of the PVACD Superintendent, the candidate will:

- Full time position
- Sort, research, and analyze water right data;
- Participate in field activities;
- Participate in meetings with local, state, and federal agencies and area schools, which may require out of town travel;
- Conduct information workshops and attend conferences as required;
- Such other duties deemed necessary or assigned.

REQUIRED QUALIFICATIONS

- A minimum of two (2) years of related experience and/or training and a Bachelor's Degree from an accreditedcollege or university; or an equivalent combination of education and experience;
- Excellent oral and written communications and interpersonal skills.

KNOWLEDGE, SKILLS, AND ABILITIES

- Ability to communicate in written and oral formats
- Ability to maintain confidentiality

EMPLOYMENT REQUIREMENTS AND REQUIRED DOCUMENTS

- Must possess and maintain a valid New Mexico Driver's License
- Must submit a letter of interest and resume/curriculum vitae

SUBMITTAL OF DOCUMENTS

May be submitted in person at the offices of the PVACD, 2303 East Second, Roswell, New Mexico 88201 or by email directed to Aron Balok, ab@pvacd.com. No telephone calls regarding the position will be accepted. Pecos Valley Artesian Conservancy District does not discriminate in employment opportunities or practices on basis of race, color, religion, national origin, sex, age, disability, sexual orientation or any other characteristics protected by law. The specific statements shown in each statement of this description are not intended to be all inclusive. The represented elements and criteria considered necessary to successfully perform the listed job. Pecos Valley Artesian Conservancy District reserves the right to cancel, change, or close any advertised position at any time.

KENNEWICK IRRIGATION DISTRICT STAFF ENGINEER I OR II (EMPHASIS ON HYDRAULIC, CONSTRUCTION OR STRUCTURAL ENGINEERING PREFERRED BUT NOT REQUIRED)

Salary: $30.09 to $40.33 hourly range depending on licensing and experience
Deadline: Until filled

DESCRIPTION

- Dynamic engineering team where you'll have the opportunity to work on a variety of civil/public work projects from conception to design and development all the way through to completion.
- No formal work experience required

RESPONSIBILITIES

- Reviewing development civil plans
- Preparing design drawings and specs
- Water modeling
- Developing construction cost estimates
- Surveying
- Work includes frequent public and staff interaction
- Outdoor assignments
- Project site investigations and inspections

BENEFITS

- Moving allowance (restrictions apply)
- Paid holidays | 9 observed & 3 floating
- Accumulating vacation and sick leave

FOR MORE INFORMATION

kid.org/employment

YAKIMA-TIETON IRRIGATION DISTRICT ASSISTANT MANAGER

Salary: $70,000-$80,000
Deadline: January 17, 2020

DESCRIPTION:

- Primarily responsible for the day to day operation
- Maintenance of the District facilities and equipment
- Supervision of the Project and Engineering Lead and Maintenance and Technical crews,
- Coordinating with the Bureau of Reclamation and District employees to monitor weather and water flows, demand changes in water use, system failures, Dam inspections and improvement projects, segregations and boundary line adjustments
- Will work closely with the Secretary-Manager on district wide projects, budget and policy matters

QUALIFICATIONS:

- Experience supervising and overseeing the maintenance and operations of a water system or a related industry
- Excellent customer service skills
- Commitment to developing employees and an understanding of rules and regulations related to a government agency
- An associate's degree in civil engineering or a related field plus five years of progressively responsible experience including two years on a supervisory or managerial capacity; or an equivalent combination of education and experience which provides knowledge, skills and abilities necessary to perform the requirements of the job

FOR MORE INFORMATION:

www.yakimatietonirrigation.com

NAMPA & MERIDIAN IRRIGATION DISTRICT EQUIPMENT OPERATOR

Salary: Wages depend on experience
Deadline: Until filled

DESCRIPTION:

- Full time position
- 40 hrs. per week (4-10 hr. days, Monday through Thursday 7:00am to 5:30pm)
- 9 paid holidays
- Paid vacation and sick leave
- PERSI, 456 and 401K Retirement Plans
- Full Medical and Dental Insurance

QUALIFICATIONS:

- Experience operating backhoe excavators and road grader
- Poses a Class A CDL License
- Must reside within 30 minutes from the district shop location (5525 E. Greenhurst Road Nampa, ID)
- Applications are only available at the shop office (5525 E. Greenhurst Road Nampa, ID) MUST APPLY IN PERSON.

FOR MORE INFORMATION:

Please call (208) 466-0663

QUINCY-COLUMBIA BASIN IRRIGATION DISTRICT STAFF ENGINEER

Salary: Non-bargaining was schedule level 8, wage DOE
Deadline: Position open until filled

DESCRIPTION:

Perform civil engineering work related to designing, planning, reviewing, and inspecting district facilities and private facilities; perform technical and feasibility studies and make recommendations based on the result.

QUALIFICATIONS:

- Undergraduate degree in civil engineering or related engineering field from an Accreditation Board for Engineering Technology (ABET) accredited college or university
- Engineer-in-training (EIT) Certification required
- Professional Engineer License preferred
- Minimum 4 years' experience in civil engineering practice or closely related engineering field
- Valid Washington State driver license with insurable MVR (Motor Vehicle Record), successful completion of pre-employment drug test and extensive background investigation
- Must perform night and weekend duty during the water season
- Must live within the District boundaries

FOR MORE INFORMATION:

QCBID website: www.qcbid.org/index.php/employment
Email: humanresources@qcbid.org
Online Application: webcorp.com/apply/QCBID/

Irrigation Leader

Upcoming Events

February 4 Winter Meeting, Kansas Water Congress, Topeka, KS
February 5–7 Annual Conference, Montana Water Resources Association, Anaconda, MT
February 10–13 Annual Conference, Nevada Water Resources Association, Las Vegas, NV
February 20–22 Annual Meeting and Conference, Family Farm Alliance, Reno, NV
February 22–27 New Zealand Education and Trade Tour, *Irrigation Leader*
February 25–27 Annual Washington, DC, Conference, Association of California Water Agencies, Washington, DC
February 26–28 Annual Salinity Summit, Multi State Salinity Coalition, Las Vegas, NV
March 3–4 Annual Conference, Texas Water Conservation Association, Fort Worth, TX
March 12 Legislative Symposium, Association of California Water Agencies, Sacramento, CA
March 16–18 Annual Workshop, Utah Water Users Association, St. George, UT
March 23–25 Texas Water Day, Texas Water Conservation Association, Washington, DC

PAST ISSUES OF *IRRIGATION LEADER* ARE ARCHIVED AT
IRRIGATIONLEADERMAGAZINE.COM

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