



OPERATIONS CHALLENGE 2022



Operations Challenge 2022 Division I Champions Elevated Ops include (from left) Matt Duncan, Lance Wenholz, Kelsey Gedge, and Josh Mallore, coached by Orren West (not pictured). The team originates from Metro Water Recovery in Denver and represents the Rocky Mountain Water Environment Association. It is the team's second overall Division I win since forming in 2015. Kieffer Photography

45 TEAMS DEMONSTRATE PROWESS, PROFESSIONALISM DURING WATER SECTOR'S MOST EXCITING ANNUAL COMPETITION

Justin Jacques with assistance from Steve Harrison and Jessica Rozek

Longtime followers of Operations Challenge know the competition day atmosphere is unlike anything else. The tension of long-running rivalries, the hunger of competitors striving to distinguish themselves, and the warmth of bonds being forged and rekindled in the fires of friendly competition all stand out as top-tier teams of wastewater professionals aim for an overall victory.

Forty-five teams came together to participate in this 35th annual event. They vied for the top spot in one of three divisions.

In Division I, seven high-performing teams with established legacies battled it out. Elevated Ops representing the Rocky Mountain Water Environment Federation (RMWEA) earned first-place overall.

Another RMWEA team, Sewerside Squad, brought home the title in Division II. Here, 25 returning teams with at least 1 year of WEFTEC competition experience tested their mettle.

Mixed Liquors from the New York Water Environment Association came out on top in Division III. This division, with 13 teams competing this year, is reserved for teams with a maximum of one prior appearance at the WEFTEC competition.

ELEVATED OPS SCALE DIVISION I SUMMIT

After first-place showings in the Division I Safety, Process Control, and Collection Systems events, Elevated Ops representing the Rocky Mountain Water Environment Association (RMWEA) left New Orleans as Operations Challenge 2022 champions. The team outpaced six other top-tier teams. Elevated Ops features coach Orren West, captain Kelsey Gedge, Lance Wenzholz, Matthew Duncan, and Joshua Mallore, who work for Metro Water Recovery (MWR) in Denver.

This year's win — their second overall victory after earning the top spot at Operations Challenge 2019 — also marks the third time Elevated Ops has placed first in the Division I Process Control Event. Although most teams described this year's Process Control Event as particularly challenging, Duncan attributes his team's repeated success to simply studying as hard as they could before competition day.

"Process Control is always a challenge and seems to evolve and get more difficult every year," he said. "It is not a very exciting strategy, but good, old-fashioned studying is what seems to work for us."

Elevated Ops also achieved their highest-ever score in the Collection Systems Event this year. They clocked in a final time of 93 seconds; almost a full 30 seconds faster than their performance at Operations Challenge 2021. Speed and precision in the Collection Systems Event was perhaps the team's largest focus during practices this year, members report.

The Elevated Ops roster has featured the same lineup since



From left, Mallore, Duncan, and Wenzholz scramble to finish the KSB Maintenance Event. Elevated Ops finished second-place in this year's KSB Maintenance Event. Kieffer Photography

2016. While much has changed during their years competing together, Duncan describes, one thing has remained the same: the level of skill that their opponents bring to each WEFTEC.

"The competition is always tough, and this year was no different," he said. "All of these teams take the competition very seriously and come to win. It drives us to get better knowing that all the other teams out there are practicing, working on their craft, and aiming for the championship. It is so difficult to win that it is extra sweet when it becomes a reality."

Elevated Ops also achieved second-place finishes in the Division I Laboratory and KSB Maintenance events. Other overall winners in Division I include Centrifugal Force, representing the Water Environment Association of Texas, in second place, and the Water Environment Association of South Carolina's Lethal Concentration in third. 🏆



Kieffer Photography

SEWERSIDE SQUAD MANEUVERS TO DIVISION II VICTORY

This year's Division II title went to Sewerside Squad of the City of Westminster, Colorado. The team represented RMWEA.

The team, consisting of captain Lindie Aragon, Steve Montoya, Jesse Jones, and Chad Harris, has quickly risen through the ranks of Operations Challenge. They debuted in 2019, placing 15th overall in their division. Returning in 2021, the team clinched fourth place in a field of 18 teams. This year, after taking first place in the Safety Event, they left New Orleans as Division II champions.

The team completed the Safety Event in 278 seconds this year — more than a full minute faster than the event's second-place finishers in Division II. Aragon described the event as a major focus during this year's practices.

"We split the event into sections," she said. "We would practice each section to determine what we can change, where we can improve, and how we can decrease our times. Chad



The RMWEA Sewerside Squad, featuring (from left) Jesse Jones, Steve Montoya, Lindie Aragon, and Chad Harris, came out on top in Division II this year. Kieffer Photography



The Sewerside Squad's Lindie Aragon and Chad Harris work diligently to complete this year's Process Control Event. Kieffer Photography

analyzed hours of videos and had suggestions every practice."

The Squad routinely practiced alongside Division I champions Elevated Ops, which also was the only team in any division this year to achieve a better Safety Event time (by one second) than the Sewerside Squad. If they return to Operations Challenge next year, the Sewerside Squad will join Division I, putting the two teams in direct competition.

"Elevated Ops have been some of our biggest cheerleaders since day one," Aragon said. "We exchange ideas, practice at each other's facilities, and compile helpful resources. According to Operations Challenge, we'll be in direct competition, but if you ask the teams, we will continue to support each other in hopes we both come home with hardware from Division I."

Their arrival among the competition's top teams may present new challenges, but based on their performance this year, Sewerside Squad appears poised for success. In addition to their victory in the Safety Event, the team achieved a better time in the Laboratory Event than any Division I team. They also outperformed several Division I teams in the KSB Maintenance and Collection Systems events.

Elsewhere in Division II, Smooth Operators from North Carolina One Water earned second-place overall after a top showing in the KSB Maintenance Event. The TRA River Guardians, representing the Water Environment Association of Texas, took home the third-place win in the division; they placed first in the Laboratory Event and third in the Safety, KSB Maintenance, and Collection Systems events. 🏆

MIXED LIQUORS LEAVE DIVISION III COMPETITION DIZZY

In their first-ever appearance at a WEFTEC competition, Mixed Liquors representing the New York Water Environment Association (NYWEA) triumphed over 12 other teams to earn the Division III title. The team from the Onondaga County Department of Water Environment Protection (OCDWEP) features coaches Casey Clark and Dean Ellsworth, captain Tony Filer, Mike Burkett, Derrick Rawson, Brendan Sharon, and alternate Owen Avery.

Mixed Liquors' victory was fueled by top showings in the Division III Safety and KSB Maintenance events. Their time in the Safety Event — 8 minutes and 5 seconds — even outpaced some Division I teams. Clark, however, said that finish was about 30 seconds slower than the times they achieved during practices. This was all part of the plan; the team's philosophy is to slow down where necessary. They choose to prioritize accuracy over speed, Clark said.

"We were finding in practice that if we slowed down on certain tasks and took our time where it really mattered, no mistakes or fumbling occurred," Clark said. "This made us more consistent and lowered our risk of receiving penalties."



Division III Champions Mixed Liquors from the New York Water Environment Association — Tony Filer, Derrick Rawson, Brendan Sharon, and Mike Burkett — celebrate their win alongside coaches and supporters. Kieffer Photography

The team's time management skills paid off with a second-place Laboratory Event finish and a fourth-place win in Collection Systems, which propelled them to the top of the Division III standings.

"It was amazing and completely surreal to find out that we got the overall win for Division III," Clark said. "Shannon Harty, our commissioner and an instrumental reason behind our success, was actually there for the ceremony and she may have even been the most excited of all of us. Before our team even made it back home from New Orleans, our co-workers at the plant had already heard how we'd done and were sending congratulatory text messages."

Reflecting on their win, Mixed Liquors expressed appreciation to their OCDWEP management and co-workers as well as to the Division II Watertown Water Bears, also representing NYWEA, for sharing their practice equipment. The team already is preparing to return to Operations Challenge next year for their Division II debut.

"Our team knows we have a substantial amount of work ahead of us," Clark acknowledged. "However, our motivation is higher than it's ever been, and we're going to do whatever it takes to be a competitive Division II team next year."

Second place in Division III went to Mass Chaos from the New England Water Environment Association. The Dirty Birds, representing the Florida Water Environment Association, took third.

Mixed Liquors' Brendan Sharon performs procedures that would propel his team to a second-place finish in the Division III Laboratory Event. Kieffer Photography



THE INTERNATIONAL COMPETITION HEATS UP

At its heart, Operations Challenge always has fostered the exchange of knowledge and skills. Competition success requires participants not only to perfect their unique approach to an event, but also to learn from their opponents who often hail from different regions, face different water treatment challenges, and use different approaches.

Beginning with the first Operations Challenge event in 1988, this unique learning opportunity has gradually attracted more and more devotees from across the U.S. and Canada. Now, the competition draws participants from as far away as Europe and South America.

At Operations Challenge 2022, teams from Colombia and Germany journeyed to New Orleans to test their mettle against North America's most skilled wastewater professionals. Their participation, however, tells only one part of the



All-Stars IFAT Munich, featuring (from left) Sophia Nerrether, Achim Ziethen, Lukas Kohl, and Marco Lederer, gear up to take on the Safety Event. Kieffer Photography

Judge Donnie Cagle Celebrates 34th Operations Challenge

As Division I Champions Elevated Ops complete the KSB Maintenance Event, Donnie Cagle looks on closely. This year Cagle served as the event's head judge.

Cagle is among Operations Challenge's longest-serving participants. Since making his debut as a competitor on various teams representing the Hampton Roads Sanitation District (HRSD; Virginia Beach, Virginia) in 1989, Cagle has attended every Operations Challenge competition in some capacity. He competed alongside the HRSD Pink & Black Attack when they took home the overall win in 1992 and would go on to regain the national title with Team HRSD's G-Force at Operations Challenge 1996 and 1998. On HRSD teams Fluid Dynamics and Terminal Velocity, Cagle played an instrumental role in winning seven additional Division I championships in 2003, 2004, 2010, 2011, 2012, 2013, and 2014.

Transitioning to a behind-the-scenes role in 2017, Cagle has since served as a KSB Maintenance Event Judge, where he gets a chance to closely observe the top-tier teams that are following in his victorious footsteps.



Kieffer Photography



The Sludgehammers, joined by WEF's Steve Harrison (far left), finished second overall in the IWA competition after placing first in the Collection Systems Event as well as second and third in the Safety and Maintenance events, respectively. Water Canada

story of how the Operations Challenge model has become an international sensation.

This year, competitions based on Operations Challenge also were held in Colombia, Argentina, Germany, and Denmark. Each aimed to expose their respective participants to new ways of protecting the environment and human health — while having some fun in the process.

Hector Montanez, a Houston-based environmental engineer and longtime Operations Challenge volunteer, described the value of the competition's international expansion for the global water profession.

"Having international teams here and sending U.S. teams to compete in other countries helps us understand what's going on outside the areas where we work and how different types of technology can help us do our jobs," Montanez said. This year at WEFTEC he helped run the Collection Systems and Laboratory events. "This kind of exposure helps us all become better wastewater professionals."

Controlled Chaos Competes in Germany

In June, Operations Challenge 2021 Division I Champions Controlled Chaos from Mount Pleasant, South Carolina, traveled nearly 8,000 km (5,000 mi) to Munich, Germany, to represent the U.S. in the World Water Skills competition.

The World Water Skills competition is a central attraction at the biennial IFAT Munich conference, organized by the German Association for Water, Wastewater, and Waste (DWA) since 2010. This event features several differences from Operations Challenge. For one, World Water Skills contains four events instead of five, lacking a Collection Systems Event. For another, while the events are timed, run times are used only to settle ties. Teams

are instead scored based on the number of mistakes they make and the accuracy with which they complete each task. Finally, the World Water Skills teams consist of two members each rather than four.

These changes meant that Controlled Chaos had to split into two separate teams: Seth Duncan and Patrick Ross on one, and Kevin Ganley and Tyler Waterhouse on another. They were the only non-German competitors in this year's contest.

Despite the competition differences and with mere hours of preparation time, the members of Controlled Chaos demonstrated why they are considered one of the all-time best Operations Challenge contenders. Both teams placed within the top five finishers in all events.

Ross told *WE&T* that the German teams showed Controlled Chaos a level of hospitality that reminded them of home, even halfway across the world.

"The German teams took us in, everybody treated us very well. We ate well and saw the sights," Ross said. "We were fully embraced."

Read more about Controlled Chaos' trip to Germany in the September 2022 issue of *WE&T*, beginning on p. 22.

Denmark Hosts WEAO Sludgehammers

The Durham Sludgehammers from the Water Environment Association of Ontario, returned to Operations Challenge this year after their last showing in 2019. Along the way back, three members — Kevin Round, Kirk Gonsalves, and Matt Moffat — attended the first-ever Operations Challenge competition hosted by the International Water Association (IWA; London) at the IWA World Water Congress 2022 in Copenhagen, Denmark. Coach and captain Adam Hubers reunited with the team at Operations Challenge.

This inaugural competition in Denmark featured seven teams: one from Finland, three from Germany, and two from Denmark, in addition to the Sludgehammers.

The IWA Operations Challenge consists of Safety, Collection Systems, and Maintenance events and is intended to be completed by teams of three. As the IWA events were modeled directly after their WEF Operations Challenge counterparts, differences were minimal and the trip served as an excellent warm-up for the WEFTEC competition, Round said.

The Sludgehammers established themselves as international contenders. Gonsalves, Moffat, and Round placed first in the Collection Systems Event as well as second and third in the Safety and Maintenance events, respectively. They returned to Ontario with the second-place overall win, closely

following the team from Finland, who took home the championship.

Like Controlled Chaos in Germany, the Sludgehammers also described how the friendliness of their opponents made them excited to return to the IWA competition at the next World Water Congress, set to take place in their home city of Toronto in 2024.

"Everyone was very welcoming, and it was great to be able to represent Canada," said Moffat. "Copenhagen is a beautiful city with lots to see. It was an awesome experience."

Operations Challenge Veterans Take on Colombia

WEF's Operations Challenge Committee hand-picked a team of longtime competitors to represent the U.S. at Olimpiadas Sanitarias IX in Cali, Colombia, which took place September 8 and 9.

The composite team consisted of New Jersey Water Environment Association Cakebreakers competitor Emily Zidanic; competition veteran Raudel Juarez, who this year coached the Division II TRA River Guardians; Bradley Yeakle, coach of the Division I Chesapeake Water Environment Association Technicians; and Marlo Davis, who competed for several years before switching to various volunteer roles as a judge and event coordinator.

Similar to Germany's World Water Skills competition, Olimpiadas Sanitarias contenders are scored on accuracy. But what makes the Olimpiadas Sanitarias competition unique is its range of eight events, each focused on different types of infrastructure maintenance.

Zidanic described that upon arriving in



Olimpiadas Sanitarias contains eight events centered on different forms of infrastructure maintenance. The U.S. team finished in 9th place out of 15 teams. Dawnyta Davis

Colombia, the team only had about 30 minutes of exposure to the rules of each event. Some of the new tasks involved using specialized equipment to fuse two pieces of pipe together, assembling and disassembling a hydrant, performing modifications on stormwater infrastructure, and controlling a chlorine leak.

"We'd never practiced together at all," Zidanic said about her team. "That was actually probably the coolest part of this experience. Our team had never competed together. Some of us had just met for the first time. So, to come together and communicate and work through these new events we were unfamiliar with as a team was a lot of fun."

This year's competition featured 15 teams from Colombia, three teams from Argentina, and the

Meet Incoming Operations Challenge Committee Chair Jeff Sober

Jeff Sober, set to succeed Brenna Durkin as Chair of WEF Operations Challenge Committee, was raised on Operations Challenge.

His father, Gary Sober, was deeply entrenched in the program from its inception. Jeff attended the first-ever Operations Challenge competition in Dallas alongside his father in 1988. He would follow his father's example to pursue his own career in wastewater engineering and become an official part of Operations Challenge as a Collection Systems Event Judge in 2006. Jeff went on to serve as Collection Systems Event Coordinator for several years before becoming Vice Chair of the WEF Operations Challenge Committee in 2020.

As Chair, Sober said he wants to further expand the competition's reach by raising awareness about its value for professional development.

"One of the things I'm going to be focusing on is the event's branding," Sober said. "I want to build some additional momentum behind the brand we've created. For the last several years, we've worked as a committee to attract more and more teams, not only from around the country but around the world. We're working to continue that trend."





A team of veteran Operations Challenge competitors and volunteers, featuring (from left) Marlo Davis, Emily Zidanic, Bradley Yeakle, and Raudel Juarez, traveled to Colombia this year to compete in Olimpiadas Sanitarias IX. Marlo Davis

U.S. team. Despite their lack of familiarity with the events and each other, however, the U.S. team earned 9th-place overall.

“One of the things that struck me the most once we got down there was that even though there was a language barrier, between all of us, the intensity, the professionalism was very clearly the same,” Juarez said.

For Davis, Olimpiadas Sanitarias marked the first time he had competed in a physical capacity since 2008. It was also his first time ever traveling outside the U.S., he said.

“The competitive juices started flowing again right away,” Davis told WE&T. “It was really exciting to be back competing.”

All-Stars Bring German Precision to U.S. Competition

As overall winners of this year’s IFAT World Water Skills competition, All-Stars IFAT Munich representing DWA earned an invitation to Operations Challenge in New Orleans. The Division III team consisted of Lukas Kohl, Marco Lederer, Achim Ziethen, and Sophia Nerrether, joined by DWA representatives Michael Doerr and Peter Albrecht.

Members of the team, who arrived on the competition floor dressed in traditional lederhosen, all specialize in infrastructure maintenance at water resource recovery facilities across Nuremberg, Dusseldorf, and Berlin. Lederer described that they came to Operations Challenge largely familiar with the KSB Maintenance and Safety events, but were less confident about the other three events, particularly Process Control and Laboratory. Before the competition began, they trained on the U.S. versions of the events alongside members of Controlled Chaos, whom they had met and bonded with earlier this year during Controlled Chaos’ trip to IFAT Munich.

True to form for a team well-versed in the IFAT competition’s focus on precision rather than speed, the All-Stars said that their goal was not necessarily to achieve the best times in their division, but rather to demonstrate their skill by avoiding penalties.

“We place a heavy focus on the quality of our work,” Ziethen said. “Doing the job right is more important than doing it quickly. Germans are famous for the quality of our products, and we want to live up to that.”

The All-Stars finished 8th overall in Division III. They placed highest in the Collection Systems Event — a trial that they had never before taken on as a team. They also won this year’s Team Congeniality Spirit Award, bestowed each year to the friendliest team as decided by popular vote among their opponents.

From Colombia to New Orleans

Agua de Manizales, representing ACODAL Colombia, were the overall winners of the 2019 Olimpiadas Sanitarias competition and earned an invitation to compete at WEFTEC. Although the pandemic derailed those plans temporarily, the team came to New Orleans to compete this year. Members of the team included Alejandro Jaramillo, Alejandro Ospina, Alexander Diaz, and Jonier Cuartas.

Members of Agua de Manizales primarily are mechanics. They described the Process Control and Laboratory events as their most significant challenges but felt particularly confident about the KSB Maintenance Event. Still, Ospina noted that even the familiar events have subtle differences in how they are run and scored.

“Competing here is a challenge for the team because it is a very different way of working,” Ospina said through a translator. “Each country or city has its way of working and uses completely different technology and tools. So, compared to the American teams, let’s say we have some shortcomings because we don’t have easy access to all the tools and training that they have available here.”

Agua de Manizales did not let any disadvantage deter them. Paul Dombrowski, Process Control



Agua de Manizales, representing Colombia, consisted of Alejandro Jaramillo, Alejandro Ospina, Alexander Diaz, and Jonier Cuartas. They received this year’s Spirit Award for Best Effort. Kieffer Photography

Event coordinator, lauded the Colombian team for their dedication to learning the ins and outs of the event on short notice. The team took a copy of the software used in the electronic portions of the event as well as a practice test back to their hotel rooms to practice together all night before competition day.

The team performed best in the KSB Maintenance Event. They finished sixth in their division in the event, but did not incur a single penalty, according to Event Coordinator Steve Motley. The team won this year’s Spirit Award for Best Effort.

“Everyone that we’ve met here while we’ve been in the city has shown us an amazing human warmth, both the organizers of the event as well as the other competitors,” Jaramillo said. “We feel very welcome here.”

Water Bears Link pH to Personality With Unique Jersey Design

This year, the Division II New York Water Environment Association Watertown Water Bears demonstrated their creativity with a head-turning jersey design. The team includes (from left) Jay Slate, Seth Foster, Angel French, J.R. Lacey, and coach Mark Crandall.

Emblazoned on the back of each Water Bear’s jersey was an unusual number. Asked about the meaning behind these numbers, French described that each number represents a pH value that corresponds to its wearer’s personality. Members of the team, most of whom work in laboratory analysis roles for the City of Watertown, run the gamut from 0 to 14, or “acidic” (0) to “basic” (14).

“Seth, he’s seven, because he’s very neutral,” French said with a smile. “J.R., he’s a two — he can be pretty acidic sometimes. Jay is a very, very basic 12. Mark, our coach, is 0.01, and he’s the most acidic of all of us, and I’m a 6.5 — I’m just trying to even everyone else out.”



NEW FACES, FEUDS, AND FIXTURES SHAPE THIS YEAR’S EVENTS

From new faces around the competition to new obstacles to surmount, no two Operations Challenges are ever alike.

Operations Challenge 2022 saw several new developments that kept this year’s participants on their toes, including new competitors in all three divisions, a preview of the next generation of the Safety Event, and behind-the-scenes roles for some of the competition’s most seasoned veterans.

Capturing Knowledge

A total of 10 teams this year celebrated their first appearance at the WEFTEC competition.

One of these teams, the Tennessee Thunder, was the first-ever group of competitors to appear at Operations Challenge representing the WEF Member Association Clean Water Professionals of

Kentucky & Tennessee. Team members included coach Brian Shelton, captain Davis Stack, Jack Carney, Marshall Abbott, and Christian Allen. The team qualified for the WEFTEC competition after a strong showing earlier this year at a regional event in Ohio.

Shelton convened the team shortly after becoming Wastewater Division Manager for the City of Clarksville, Tennessee. He saw Operations Challenge as a way to help overcome the loss of institutional knowledge left behind by a wave of recent retirements. The Thunder enjoyed strong support from their employers, their Member Association, as well as their city, Shelton said. The team even received recognition from Clarksville’s mayor during city council meetings.

“People unfamiliar with this program maybe



The Tennessee Thunder, the first-ever team to represent Clean Water Professionals of Kentucky & Tennessee at Operations Challenge, featured Davis Stack, Jack Carney, Marshall Abbott, and Christian Allen. Kieffer Photography

don't fully understand just how much experience Operations Challenge exposes these guys to," Shelton said. "Operations Challenge was something I was aware of for years, but I just thought this year was the best time to finally take advantage of it."

The Thunder already are eyeing a return next year, with designs on establishing a Division I dynasty.

"This year, we're trying to lay a foundation to build from in the future," Shelton said. "We figure the speed will come with time and practice, so this year we just want to focus on doing the events by the book, and we'll just get better and better."

Return to Competition

Blue Wave, winners of this year's Spirit Award for Best Fan Support, are the first team to represent DC Water (Washington, D.C.) at Operations Challenge in nearly a decade. The team consisted of captain Donovan Midkiff, Michael Templeton, Ronald Taylor, and Lamar Dunnington. They arrived to the competition backed by a full delegation from DC Water. Among the entourage were coaches Gregory Stephens, Aaron Montgomery, and Wendell Smith, who have



competed on past DC Water teams.

Templeton described his team's excitement at the opportunity to carry on DC Water's Operations Challenge legacy.

"Operations Challenge is always something we've known about and wanted to do," he said. "We're a relatively new team — we've only been practicing together for two or three months — but when the opportunity to compete this year came up, we jumped on it."

Former CReWSers Spark New Rivalry

Beginning in 1996, the Trinity River Authority (TRA; Arlington, Texas) CReWSers representing the Water Environment Association of Texas (WEAT) built one of Operations Challenge's most successful dynasties. The team earned seven Division I overall wins before officially disbanding after the 2021 competition. But Steve Price, a founding member of the CReWSers who spent years as a competitor before becoming the team's coach, and Raudel Juarez, a perennial CReWSers competitor involved with the team since 2007, are not ready to leave Operations Challenge behind yet.

This year, Price and Juarez stepped into new roles as coaches of two Division II teams representing TRA: the Waste Warriors and the River Guardians, respectively.

Price has mentored countless competitors during his nearly 30 years with the CReWSers and other WEAT Operations Challenge teams, including some of the most talented participants ever to take on the competition. One thing they all have in common, Price said, is composure under pressure. He described how the Waste Warriors — Billy Ball, Daniel Kiskadden, Joseph Gedville, and Devon Eaton — demonstrated this trait.

"We're here for five events over two days only once per year. You just never know what's going to happen during that time," Price said. "It takes nerves — it takes a special kind of person to hold it all together."

As a first-time coach, Juarez acknowledged both similarities and differences between preparing for Operations Challenge as a coach and as a competitor. His team, the River Guardians, featured Gary Carr, Howard Williams, George Garcia, and Miguel Zavala.

"They're definitely taking me back to my time as a competitor," Juarez said. "The enthusiasm, the intensity, the adrenaline; it's all the same. At the same time, it's difficult as a coach because you have the same enthusiasm, intensity, and adrenaline that they have, but you have no release for it because you're not doing the physical events."

As longtime co-workers and CReWSers teammates, Price and Juarez described a friendly

relationship that outshines any rivalry between their new teams.

"There's a sense of mutual respect between us, but we still know that even though we may be friends, we're all still bringing 1,000% intensity," Juarez said. "We want to be the first ones to beat each other, but also want to be the first ones to congratulate each other."

Both teams delivered impressive performances. In the end, the River Guardians came out on top between the two TRA teams, placing first in the Division II Laboratory Event and third place overall.

New Technology Modernizes Safety Event

Each year, Operations Challenge planners update at least one of the five events to keep the competition both challenging and relevant as best-practice procedures change and technology develops. This year they turned to the Safety Event. The updates introduced competitors to a first-of-its-kind virtual reality (VR) program developed by longtime equipment supplier Dräger (Houston) in partnership with FreeRange XR (Sausalito, California).

One member of each team was required to complete a VR-based portion of the Safety Event. The VR performance was not factored into their team's overall score. However, Tim Scott, Safety Event Coordinator, described the Operations Challenge Committee's hope to score the VR portion in the future.

"We've got to be careful to make sure we integrate VR into the Safety Event in the right way," Scott said. "We have to make sure we vet it properly, because it's a pretty big introduction."

Like the traditional Safety Event, the VR software tasks competitors with entering a confined space, using common tools to assess and address potential hazards. But unlike the physical event, in which properly functioning safety gear is supplied to each team, participants in the VR event must hand-select their equipment and determine whether it is in proper, working condition before proceeding. And some virtual equipment available to participants will malfunction upon use. Part of the rationale behind introducing the program, Scott said, is to reinforce the importance of equipment inspection and maintenance as a critical step in emergency response.

"There's a responsibility in Operations Challenge to expose participants to new and different things that they might not get challenged with in their day-to-day work," Scott said. "A lot of operators may already see VR in their work center as a training tool, but if it enters the scene in the next 2, 3, 4, or 5 years, our participants will have



(From left) Joseph Gedville and Billy Ball of the TRA Waste Warriors — coached this year for the first time by competition veteran Steve Price — put their minds to work during the Process Control Event. Kieffer Photography

some baseline familiarity with it. This exposure will help them in their careers."

Most teams described their experience testing the VR portion of the Safety Event as enjoyable and informative. Jeff Severson, competing with the Division III Central States Water Environment Association Pumpers, sported an ear-to-ear grin as he took off the VR headset after completing the trial.

"It was a little confusing at first, but once you get to know how to move around and how the equipment works, it starts to make sense," Severson said. "It's pretty valuable for training purposes because, like the classic Safety Event, it really forces you to go through all the checks that you should be doing. It really makes you think about the steps you're taking, beyond just physically doing them."



Jonier Cuartas, a member of Aguas de Manizales, dons a virtual reality (VR) headset to complete a VR-enabled portion of the Safety Event. This new element debuted this year. Kieffer Photography