

LESS SALT. MORE WATER.

MSSC

Multi-State Salinity Coalition



— BUREAU OF —
RECLAMATION



Multi-State Salinity Coalition 2024 ANNUAL SALINITY SUMMIT

February 28–29, March 1, 2024 Tuscany Suites & Casino Las Vegas, NV

2024 Annual Salinity Summit Multi-State Salinity Coalition

Tuscany Suites & Casino • February 28-29, March 1, 2024

2024 Partner



— BUREAU OF — RECLAMATION

Established in 1902, the Bureau of Reclamation is best known for the dams, powerplants and canals it constructed in the 17 western states. These water projects led to homesteading and promoted the economic development of the West. Reclamation has constructed more than 600 dams and reservoirs including Hoover Dam on the Colorado River and Grand Coulee on the Columbia River.

Today, we are the largest wholesaler of water in the country. We bring water to more than 31 million people, and provide one out of five Western farmers (140,000) with irrigation water for 10 million acres of farmland that produce 60% of the nation's vegetables and 25% of its fruits and nuts.

Reclamation is also the second largest producer of hydroelectric power in the western United States. Our 58 powerplants annually provide more than 40 billion kilowatt hours generating nearly a billion dollars in power revenues and produce enough electricity to serve six million homes.

Today, Reclamation is a contemporary water management agency with a Strategic Plan outlining numerous programs, initiatives and activities that will help the western states, native American tribes and others meet new water needs and balance the multitude of competing uses of water in the West. Our mission is to assist in meeting the increasing water demands of the West while protecting the environment and the public's investment in these structures. We place great emphasis on fulfilling our water delivery obligations, water conservation, water recycling and reuse, and developing partnerships with our customers, states and native American tribes, and in finding ways to bring together the variety of interests to address the competing needs for our limited water resources.

2024 Annual Salinity Summit Multi-State Salinity Coalition

Tuscany Suites & Casino • February 28-29, March 1, 2024

Greetings, MSSC Summit Attendees



Greetings, and welcome to the National Salinity Summit! The 2024 National Salinity Summit Planning Committee did an excellent job of bringing together a strong program. This year's Summit will include sessions that focus on salinity management, desalination project implementation strategies and approaches, water/power co-location, addressing regulatory and environmental hurdles, and future strategies to manage desalination and concentrate management.

I would like to extend my thanks to all of the 2024 Annual Summit's generous sponsors. The success of the Summit would not be possible without their support and dedication to the MSSC. All of the sponsors are listed in this brochure. We also have them listed on the MSSC website and will provide a link to their sites as advertisement to them. Please take a moment to thank them during the event. In addition to the success of the event, their support allows the MSSC to hold the event at a reasonable cost to Summit attendees.

It has been a pleasure to serve as the Multi-State Salinity Coalition President. I have enjoyed working with such an intelligent and talented planning committee. Please take the time to fill out the evaluation forms that are provided for you in the registration packets. Your comments will help us provide the best quality events in the future. I look forward to seeing you here at the Summit!

Best Regards,

A handwritten signature in blue ink, appearing to read "Scott Reinert". The signature is fluid and cursive.

Scott Reinert
President, Multi-State Salinity Coalition

2024 Annual Salinity Summit Multi-State Salinity Coalition

Tuscany Suites & Casino • February 28-29, March 1, 2024

Conference Schedule

Wednesday, February 28, 2024

- 1:00 p.m. – 7:00 p.m. **Exhibitor and Poster Presentation Set-Up**
- 4:00 p.m. – 7:00 p.m. **Summit Conference Registration**
- 5:00 p.m. – 6:30 p.m. **MSSC Board Meeting**
- 6:30 p.m. – 8:00 p.m. **MSSC Board, Partner & Platinum Sponsor VIP Party**

Thursday, February 29, 2024

- 7:00 a.m. – 4:00 p.m. **Summit Conference Registration**
- 7:00 a.m. – 8:30 a.m. **Breakfast with the MSSC Board Members Round Table**
Moderator: **Orestes Morfin**, *Vice President, Multi State Salinity Coalition and Planning Analyst, Central Arizona Project*
Speakers:
MSSC Board Members
- 8:30 a.m. – 8:45 a.m. **Opening Remarks**
Moderator: **Scott Reinert**, *President, Multi State Salinity Coalition and Hydrogeologist /Water Resources Manager, El Paso Water*
- 8:45 a.m. – 9:15 a.m. **Keynote Session**
Moderator: **Scott Reinert**, *President, Multi State Salinity Coalition and Hydrogeologist /Water Resources Manager, El Paso Water*
Speaker:
Sharon B. Megdal, *Director of the University of Arizona Water Resources Research Center and Professor of Environmental Science, "Salty Reflections"*
Sharon will speak about how considerations of salt content enter into her water research, education and engagement, including connecting issues related to the invisibility of groundwater to the invisibility of salt in water. She will also speak to the importance of extensive and inclusive networking, including how such networking is connected to desalination plants and technology.

2024 Annual Salinity Summit Multi-State Salinity Coalition

Tuscany Suites & Casino • February 28-29, March 1, 2024

Conference Schedule

- 9:15 a.m. – 9:45 a.m.** **Current and Future Trends in Water Reuse Research and Policy**
Moderator: **Julie Minton**, *Research Unit Leader, The Water Research Foundation, WRF*
Speakers:
Sydney Samples, *Research Program Manager, The Water Research Foundation, WRF*
Zachary Dorsey, *Director of Programs & Strategic Operations, WaterReuse Association*
- 9:45 a.m. – 10:00 a.m.** **Bureau of Reclamation Funding Opportunities Session**
Speakers:
Maribeth Menendez, *Program Coordinator at the Bureau of Reclamation – Water Resources & Planning Office – Water Recycling & Desalination Construction Programs*
Andrew Tiffenbach, *Civil Engineer, Research & Development Office, Department of the Interior, Bureau of Reclamation, “Upcoming Bureau of Reclamation Funding Opportunities for Water Reuse and Desalination Construction and Water Treatment Research”*
- 10:00 a.m. – 10:15 a.m.** **The Great MSSC Water Taste Test**
Brownsville, TX – **Erika Mancha**
Security, CO – **Brandon Bernard**
Bozeman, MT – **Anthony Bruno**
Grasonville, MD – **Julie Minton**
Temecula, CA – **Lanaya Voelz Alexander**
- 10:15 a.m. – 11:30 p.m.** **Managing the Arizona Water Session**
This session will focus on the always challenging nature of managing water in Central Arizona. We will hear from the state’s two largest water providers: the Salt River Project and the Central Arizona Project. Together, these two agencies effectively manage the vast majority of the state’s renewable surface water supplies. We all know that managing water requires infrastructure ... big infrastructure. We will hear from the state’s Water Infrastructure Finance Authority and how they help position Arizona for the future through targeted financing of projects. Finally, the City of Phoenix will share with us the story of their recently completed drought preparedness pipeline designed to build flexibility and resiliency into the City of Phoenix’s water supply in the face of unprecedented drought challenges.

2024 Annual Salinity Summit Multi-State Salinity Coalition

Tuscany Suites & Casino • February 28-29, March 1, 2024

Conference Schedule

Moderator: **Charlie Ester**, *Director, Water Supply, Salt River Project*

Speakers:

Tim Skarupa, *Manager of Surface Water, Salt River Project*

Chuck Podolak, *Director, Water Infrastructure Finance Authority of Arizona (WIFA), "Arizona's All-of-the-Above Approach to Investing in Water"*

Clayton Freed, *Civil Engineer III Team Leader, City of Phoenix, Water Services Department/Water Engineering*

Patrick Dent, *Assistant General Manager, Water Policy, Central Arizona Project*

11:30 a.m. – 12:00 p.m.

Luncheon Keynote Speaker

Moderator: **Scott Reinert**, *President, Multi State Salinity Coalition and Hydrogeologist /Water Resources Manager, El Paso Water*

Speaker:

Dr. Maria-Elena Giner, *United States Commissioner of the International Boundary & Water Commission, United States & Mexico*

12:00 p.m. – 1:15 p.m.

Special Recognition & Luncheon

Moderator: **Scott Reinert**, *President, Multi State Salinity Coalition and Hydrogeologist/Water Resources Manager, El Paso Water*

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— The Water Research Foundation

"Salt of the Earth Award"

"Student Scholarship Award"

2024 Annual Salinity Summit Multi-State Salinity Coalition

Tuscany Suites & Casino • February 28-29, March 1, 2024

Conference Schedule

1:15 p.m. – 2:30 p.m.

Concentrate Management Session

Concentrate Management – Discharge, Dispose, Disappear?

Moderator: **Lanaya Voelz Alexander**, *Assistant General Manager; Planning, Engineering & Construction, Eastern Municipal Water District*

Speakers:

Adam Zacheis, *Senior Client Service Manager, Brown and Caldwell, “High Rate Recovery for Santa Monica”*

William Delgado, *Desalination & Reuse Engineering Specialist, Texas Water Development Board, “Concentrate Disposal Methods in Texas”*

Saied Delagah, *Chemical Engineer at Department of Interior, Technical Service Center, Department of the Interior, Bureau of Reclamation*

Jeff Mosher, *General Manager, Santa Ana Watershed Project Authority, “Inland Empire Brine Line”*

2:30 p.m. – 2:45 p.m.

Break

2:45 p.m. – 3:45 p.m.

Climate/Atmospheric Rivers/Climate Change Session

Assessing climate change impacts as water resources management strategy, integrating weather forecasting to enhance water resources management and diversify implementation of water supply projects, as well as provide climate tools for enhance reservoir measurement.

Moderator: **Rachel Gray**, *Planning & Water Resources Manager, Santa Ana Watershed Project Authority*

Speakers:

Charlie Ester, *Director, Water Supply, Salt River Project, “Contrasting Climate Impacts in Central Arizona to the Upper Colorado River Basin”*

Lisa Haney, *Executive Director of Planning & Natural Resources, Orange County Water District, “Forecast Informed Reservoir Operations Project”*

Lauren Dennis, *Civil Engineer, Research & Development Office, Department of the Interior, Bureau of Reclamation, “Research and Development Investments Supporting Water Management Resilience and Flexibility”*

Todd Flanagan, *Meteorologist, North American Weather Consultants Inc., “Weather Modification Project”*

2024 Annual Salinity Summit Multi-State Salinity Coalition

Tuscany Suites & Casino • February 28-29, March 1, 2024

Conference Schedule

3:45 p.m. – 4:45 p.m.

Quality Time with Our Water Experts Round Table

Each exhibitor has eight minutes to share with three minutes between to move to next exhibit. Discuss Companies, Projects, Products, Sponsors, Posters, Funding Opportunities, etc. Make certain your passport is stamped to quality for a great prize!

4:45 p.m. – 5:45 p.m.

PFAS, New Rules Session

It's common knowledge by now that PFAS is a pain in the ASS. This session will bring subject matter experts from across the industry to discuss all things PFAS. The following topics will be discussed:

- 1) the regulatory outlook;
- 2) how to make sure you are checking the proper legal boxes along the way;
- 3) lessons learned from a CO municipality faced with PFAS contamination that was one of the first in the country to execute a PFAS road map from legal, PR, piloting and wellhead treatment; and
- 4) a review of the destructive vs. non-destructive technologies.

Moderator: **Eric Dole**, *Water & Energy Practice Lead, Water Technology Leader, Garver*

Speakers:

Howard Kenison, *Past Chair, ABA Section of Environment Energy & Resources, Attorney At Law, Jones & Keller, P.C., "Litigation Issues for Utilities Faced with PFAS Contamination + CO Case Study"*

Lucas Hale, *District Manager, Widefield Water & Sanitation District, "Lessons Learned From One of the First Municipalities in the Country to Execute a PFAS Road Map Including Wellhead Treatment"*

Chris Bellona, *Assistant Professor at Colorado School of Mines/PFAS Subject Matter Expert, "Treatment Tech Update Destructive vs. Nondestructive"*

5:45 p.m. – 7:30 p.m.

Reception with heavy hors d'oeuvres

Friday, March 1, 2024 NO SLIDE FRIDAY!

7:30 a.m. - 12:00 p.m.

MSSC Summit Conference Registration

8:00 a.m. – 8:40 a.m.

Breakfast

8:45 a.m. – 9:00 a.m.

Results of The Great MSSC Taste Test

Moderator: **Scott Reinert**, *President, Multi State Salinity Coalition and Hydrogeologist/Water Resources Manager, El Paso Water*

2024 Annual Salinity Summit Multi-State Salinity Coalition

Tuscany Suites & Casino • February 28-29, March 1, 2024

Conference Schedule

9:00 a.m. – 9:45 a.m.

Keynote Speaker

Moderator: **Yuliana Porras- Mendoza**, *One Water Practice Leader, Garver*

Speaker:

Celeste Cantu, *Public Policy Institute of California, Vice Chair Water Foundation, Vice President of Water Education Foundation, "Making Finite Water Infinite"*

9:45 a.m. – 10:45 a.m.

One Water, What is It and Do I Need It? Session

This panel and discussion will touch on One Water. How are we defining this term in the water industry and are we taking advantage of the benefits this term and work under this area provides. This panel will bring their expertise to add to this discussion and the audience will have an opportunity to learn and also provide their knowledge on this topic.

Moderator: **Yuliana Porras- Mendoza**, *One Water Practice Leader, Garver*

Speakers:

Peter Fiske, *Executive Director, National Alliance for Water Innovation (NAWI)*

Brett Danson, *President/CEO, GELF Sciences, Inc., GELF Energy Corp., "Renewable Energy Decarbonization Solutions That Can Power High Energy Demand Water Purification"*

Jack Simes, *Southern California Area Office Manager, Department of the Interior, Bureau of Reclamation*

10:45 a.m. – 11:45 a.m.

Fun Interactive Dialogue, Discussion and Water Trivia Session

Moderator: **Scott Reinert**, *President, Multi State Salinity Coalition and Hydrogeologist/Water Resources Manager, El Paso Water*

Speakers:

Roger Peery, *CEO/Principal Hydrogeologist, John Shomaker & Associates*

Sanaan Villalobos, *Texas BD Manager / Vice President, Carollo*

Ty Morton, *Senior Project Manager, HDR*

Lanaya Voelz Alexander, *Assistant General Manager; Planning, Engineering & Construction, Eastern Municipal Water District*

Scott Miller, *Water Resource Analyst, Water Resources Management, Arizona Public Service*

11:45 a.m. – 12:00 p.m.

MSSC Closing Remarks, Summary & Adjourn

2024 Annual Salinity Summit Multi-State Salinity Coalition

Tuscany Suites & Casino • February 28-29, March 1, 2024

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Arizona Public Service generates clean, reliable and affordable energy for 2.7 million Arizonans. Our service territory stretches across the state, from the border town of Douglas to the vistas of the Grand Canyon, from the solar fields of Gila Bend to the ponderosa pines of Payson. As the state's largest and longest-serving energy provider, our 6,300 dedicated employees power our vision of creating a sustainable energy future for Arizona. Customers can depend on us all year long, particularly during our hot Arizona summers. We're proud to be among the top energy companies in the nation for reliable service. Advanced technologies are enhancing our ability to detect and respond to outages while maintaining a safe, more flexible grid. By continually investing in the energy grid, we ensure our customers have access to clean, reliable and affordable power whenever they need it.

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Tuscany Suites & Casino • February 28-29, March 1, 2024

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Carollo is an environmental engineering firm specializing in the planning, design, and construction of water and wastewater facilities and infrastructure. Our firm has over 1,100 employees and currently maintains 46 offices in 19 states. We are a full-service company with the experience and qualified professionals to successfully manage projects of any size.

During our 87-year history, Carollo has successfully completed more than 25,000 projects for public sector clients. Carollo is currently ranked within Engineering News Record's top 500 design firms. More importantly, ENR's annual Source Book ranks Carollo among the top 10 firms for water and wastewater treatment plant design. Unlike many of our competitors, Carollo provides only water and wastewater engineering services.

With our focus on water and wastewater, we recruit nationwide and hire technical staff who have the extensive background and training specific to this field. For that reason, the quality and professional standing of our core group of water and wastewater professionals equals or exceeds that provided by some of the largest engineering firms in the United States.

2024 Annual Salinity Summit Multi-State Salinity Coalition

Tuscany Suites & Casino • February 28-29, March 1, 2024

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Eastern Municipal Water District (EMWD) is the water, wastewater service and recycled water provider to more than 825,000 people living and working within a 555-square-mile service area in western Riverside County. It is California's sixth-largest retail water agency and its mission is "to deliver value to our customers and the communities we serve by providing safe, reliable, economical and environmentally sustainable water, wastewater and recycled water services." With more than 50 years of experience, the board members and staff of EMWD are proud, confident and ready for the future.

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Tuscany Suites & Casino • February 28-29, March 1, 2024

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El Paso Water is the regional planner and provider to water, wastewater, reclaimed water and stormwater services to nearly 700,000 people in the greater metropolitan area. It is a component part of the City of El Paso and its governed by a seven-member Public Service Board. Its mission is to furnish, at a fair and reasonable cost to customers, high-quality potable water in sufficient quantities to satisfy domestic, industrial and fire protection requirements, along with collection of liquid waste for treatment and disposal without risk to public health and the environment.

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Tuscany Suites & Casino • February 28-29, March 1, 2024

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Founded in 1919, Garver is an employee-owned multi-disciplined engineering, planning, architectural, and environmental services firm with nearly 900 employees across the United States. Offering a wide range of services focused on aviation, construction, facilities design, federal, survey, transportation, water, and wastewater, Garver sits in the top 125 of the Engineering News-Record's prestigious Top 500 Design Firms list and is consistently recognized as a best firm to work for.

Every community deserves safe, affordable drinking water and clean rivers and streams. That's the mission Garver and our partnered utilities work toward every day. And every day, these utilities are faced with challenges of aging infrastructure, increasing water quality requirements, and concerns over funding. Garver's Water Team is uniquely built with client-focused, local teams that provide constant support, four design centers providing sophisticated design of all engineering disciplines, and a Water Technology Team comprised of national experts that can innovatively solve the most challenging water and wastewater quality concerns.

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Tuscany Suites & Casino • February 28-29, March 1, 2024

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Since 1917, HDR Inc. has served as a trusted partner to our clients throughout the world. With more than 12,000 employees in over 220 offices worldwide, we are global leaders in engineering, architecture, environmental and construction services. We work side by side with our clients to improve lives, grow communities and accelerate progress. While we are most well-known for adding beauty and structure to communities through high-performance buildings and smart infrastructure, we provide much more than that. We create an unshakable foundation for progress because our multidisciplinary teams also include scientists, economists, builders, analysts and artists.

We are consistently ranked as an industry leader. We plan, design, build, operate and maintain assets that drive economic growth in markets such as Water, Transportation, Oil & Gas, Power, Architecture, Industrial, Mining, Private Development, Waste and more. We are dedicated to providing healthy, enticing and mobile environments where people can live, work and play. We safeguard natural resources responsibly, preparing for future generations.

2024 Annual Salinity Summit Multi-State Salinity Coalition

Tuscany Suites & Casino • February 28-29, March 1, 2024

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John Shomaker & Associates, Inc. (JSAI) is an employee-owned corporation, which has been providing professional services in the areas of fresh and brackish water-resource development, groundwater flow modeling, drilling specifications for large capacity wells, geochemistry, environmental assessment and reclamation, and expert witness testimony for over 41 years. Our technical staff consists of hydrogeologists, hydrologists, geochemists, geologists, and GIS/AutoCAD specialists. JSAI has ongoing projects in New Mexico, Texas, Nevada, California, South Dakota, Argentina, Chile, Guatemala, and British Columbia.

JSAI has developed drilling specifications for brackish water wells completed in unconfined and confined aquifers, hydrogeologic assessments for concentrate disposal wells, and performed field oversight and data collection for all aspects of drilling, completing and testing of concentrate disposal wells, and interpreted water quality and hydraulic property test data. The success of JSAI's water-resource and environmental projects comes from careful scientific practice and experience.

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Tuscany Suites & Casino • February 28-29, March 1, 2024

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THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

The Metropolitan Water District of Southern California serves 26 public water agencies — cities, municipal water districts and one county water authority — that then deliver supplies directly or indirectly to 19 million people in Los Angeles, Orange, Riverside, San Bernardino, San Diego and Ventura counties.

We have imported water from the Colorado River since 1941 and from Northern California since the early 1970s. We are the largest single contractor of the State Water Project and a major supporter of Southern California water conservation and water recycling programs, along with other local water management activities.

Whether it's historic drought or the longer-term threat of climate change, we're here to protect the region and provide high-quality affordable water in an environmentally responsible way.

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Tuscany Suites & Casino • February 28-29, March 1, 2024

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North American Weather Consultants (NAWC) provides a host of meteorological services to private and public sector clients. These services include Cloud Seeding, Specialized Forecasting, Intensive Storm Monitoring, Air Quality Monitoring and Long Term Impact Studies, Weather Station Installation and Maintenance, Forensic Storm Evaluations and various meteorological consultative services.

– Cloud Seeding-

North American Weather Consultants (NAWC) has been involved in cloud seeding research and operational programs since the early 1950's. NAWC's cloud seeding programs currently cover over 20,000 square miles (13 million acres) across the western United States, with operational sites in California, Utah, Colorado, Idaho and Wyoming.

With over 250 ground seeding installations NAWC has the largest collective ground-based seeding program in the world. NAWC also provides aerial cloud seeding, with aerial programs located in California and Utah.

Long term target vs control climatological studies indicate an increase in seasonal runoff of 300,000 acre-feet, in targeted areas, resulting from NAWC's cloud seeding programs.

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Tuscany Suites & Casino • February 28-29, March 1, 2024

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The Water Research Foundation is the premier not-for-profit research cooperative advancing the science of water to protect public health and the environment. Governed principally by utilities, the foundation delivers scientifically sound research solutions and knowledge to serve subscribers and stakeholders in all areas of drinking water, wastewater, stormwater, and reuse. The new foundation will have approximately 1,200 subscribers, 2,300 research studies, and a \$700M portfolio.

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Tuscany Suites & Casino • February 28-29, March 1, 2024

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Exhibitors

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Texas Water Development Board**

Attendees, thank you for your support!

The exchange of information is paramount in developing and implementing policies for successful desalination programs. The Multi-State Salinity Coalition's Summit proves to be an excellent venue for this exchange, and will prove to be a benchmark in enhancing the continued efforts in managing these resources. It would not be possible for MSSC to host the Summit without the support of our sponsors, dedication from our speakers and moderators, and participation of our guests.

On behalf of the Multi-State Salinity Coalition Board of Directors and Planning Committee, thank you for your continuous dedication. We look forward to a great Summit.

2024 Annual Salinity Summit Multi-State Salinity Coalition

Tuscany Suites & Casino • February 28-29, March 1, 2024

Poster Presentation

Processing Contaminated Waters and Flow-Streams with the Natural Acidification Process

Terry R. Gong

Harmon Systems International, LLC & Earth Renaissance Technologies, LLC
2201 Coy Avenue, Bakersfield, California 93307-4447
westernso2@aol.com • 925-250-4559

To optimize the process of separating dissolved minerals, heavy metals, chemical compounds, per and polyfluoroalkyl substances, etc., from contaminated waters and/or flow-streams will require greater and precise pH control throughout the remediation process. To achieve this, our current and future facilities will need to incorporate this feature into their overall operations. While this can be accomplished by using a strong acid such as Sulfuric (H_2SO_4), due to the sheer and expected overall volume of acidity that will be required, an alternative and more cost-effective acidifying method is needed, and that would be to integrate and use a Harmon SO_2 -Sulfurous Acid Generator instead. This method oxidizes elemental sulfur (S) into sulfur dioxide (SO_2) and inputs the resulting gas directly into the contaminated water (H_2O) or flow-stream to form a weak acid known as Sulfurous (H_2SO_3), which immediately releases its first free hydrogen proton (H^+) and its remaining free hydrogen proton (H^+) when the bisulfite (HSO_3^-) oxidizes and transforms into sulfate ($SO_4^{=}$) to control the pH of the water or flow-stream, which can then be increased or decreased as needed, to aid the remediation process.

The advantages of on-site generating and/or liberating the acidic free hydrogen protons (H^+) is that this method: eliminates the need to produce and import acidifiers from distant and remote locations; will have the smallest overall carbon-foot-print to implement; is the safest to use; provides the required amount of acidity at the lowest possible cost; etc. However, the most compelling reason for adopting this method is that it creates bisulfite (HSO_3^-) – a oxygen scavenger. So, besides using it to control the pH for other processing systems, it may be possible to use this method of acidification as the preferred means to introduce and use bisulfite to break-apart and deconstruct the molecular structure of PFAS.

This poster presentation will provide a conceptual overview of how this method of acidification works and how it can be employed.

2024 Annual Salinity Summit Multi-State Salinity Coalition

Tuscany Suites & Casino • February 28-29, March 1, 2024

Poster Presentation

Salt-Free Electrodialysis Metathesis for High Recovery Reverse Osmosis Concentrate Management

Tayia Oddonetto, PhD Candidate

NEWT Research Center & Center for Inland Desalination Systems

Civil & Environmental Engineering

The University of Texas at El Paso

500 W. University Avenue, El Paso, Texas 79968

915-747-8953 • www.utep.edu/engineering/cids/

Because reverse osmosis is often limited to a recovery of 70-85%, implementing a secondary process like electrodialysis metathesis (EDM) to treat concentrate can increase system recovery. Conventional EDM is an electrically driven membrane process that employs the metathesis exchange to turn salts that are sparingly soluble into salts that are highly soluble. A major challenge of conventional EDM is that it requires the addition of aqueous sodium chloride to serve as the substitution solution. Fujifilm developed an alternative salt-free process that uses a combination of conventional cation and anion exchange membranes and monovalent cation and anion exchange membranes. Salt-free EDM produces one diluate and two highly soluble concentrates (one rich in sodium and sulfate and one rich in chloride and calcium), decreasing the associated risks of calcium sulfate precipitation. This technology requires approximately half of the energy required by conventional EDM because it does not transport additional sodium chloride. A series of lab-scale tests based on modeled RO concentrate were performed to inform the design of a pilot-scale system to treat reverse osmosis concentrate in continuous flow at the Brackish Groundwater National Desalination Research Facility in Alamogordo, NM.

2024 Annual Salinity Summit Multi-State Salinity Coalition

Tuscany Suites & Casino • February 28-29, March 1, 2024

Poster Presentation

An Update on Brackish Groundwater Mapping in Texas with Current Woodbine Aquifer Study

Sara Sutton, P.G., Mark Robinson, P.G., Olga Bauer
Texas Water Development Board
1700 N. Congress Avenue, Austin, Texas 78701-1436
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The Brackish Resources Aquifer Characterization System (BRACS) is a program of the Texas Water Development Board (TWDB) tasked with mapping the distribution and quality of brackish groundwater in the state of Texas to aid in the exploration and development of this resource for inland groundwater desalination.

The objectives of a BRACS study are to collect, analyze, and interpret publicly available well data and geophysical well logs (often numbering in the thousands). The collected data is used to map the relevant geologic boundaries, distribution of total dissolved solids, distribution of key chemical parameters of interest for desalination, and the net sand distribution of the aquifer. The results are then utilized to estimate the volume and distribution of fresh and brackish groundwater water in the aquifer. Information created during the study process is incorporated into the publicly available BRACS Database and GIS datasets. A peer-reviewed report is prepared and published to share study findings. To date, the TWDB has completed 16 brackish aquifer studies.

Additionally, the TWDB will map brackish groundwater production zones (BGPZs) in eligible major and minor aquifers of the state by 2032. BGPZs are portions of an aquifer that have moderate to high availability and productivity of brackish groundwater over 30- and 50-year horizons without significantly affecting freshwater resources and existing domestic, agricultural, and public supply wells. Furthermore, the BGPZs are mapped to avoid injection and disposal wells and their associated injectate. To date, the TWDB has designated a total of 31 brackish groundwater production zones, with four additional zones currently undergoing a review process.

The TWDB is currently working on three brackish aquifer studies, including the Woodbine Aquifer. The Woodbine Aquifer is a minor aquifer located in northeast Texas consisting of sandstone interbedded with layers of shale and clay. The in-house Woodbine Aquifer study is scheduled for completion in winter 2024, and covers an area of approximately 15,000 square miles, including both unconfined and confined portions of the aquifer.

2024 Multi-State Salinity Coalition

Member Agency Representatives



Lanaya Voelz Alexander

Assistant General Manager, Planning, Engineering & Construction
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Ernie Avila, P.E.

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Our Mission: To promote advancements in technologies for desalination and reuse, salinity control strategies, water/energy efficiencies and related public policies that will assist communities in meeting their water needs.

Our Vision: Creating reliable water from alternative sources.

Our Goal: We work to achieve our mission and vision through fostering collaboration on the policy and technology of desalination and salinity management through communication, quarterly meetings, and an annual national salinity summit.



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