

SPRING  
2012

The Official Publication of the Water Environment Association of Utah

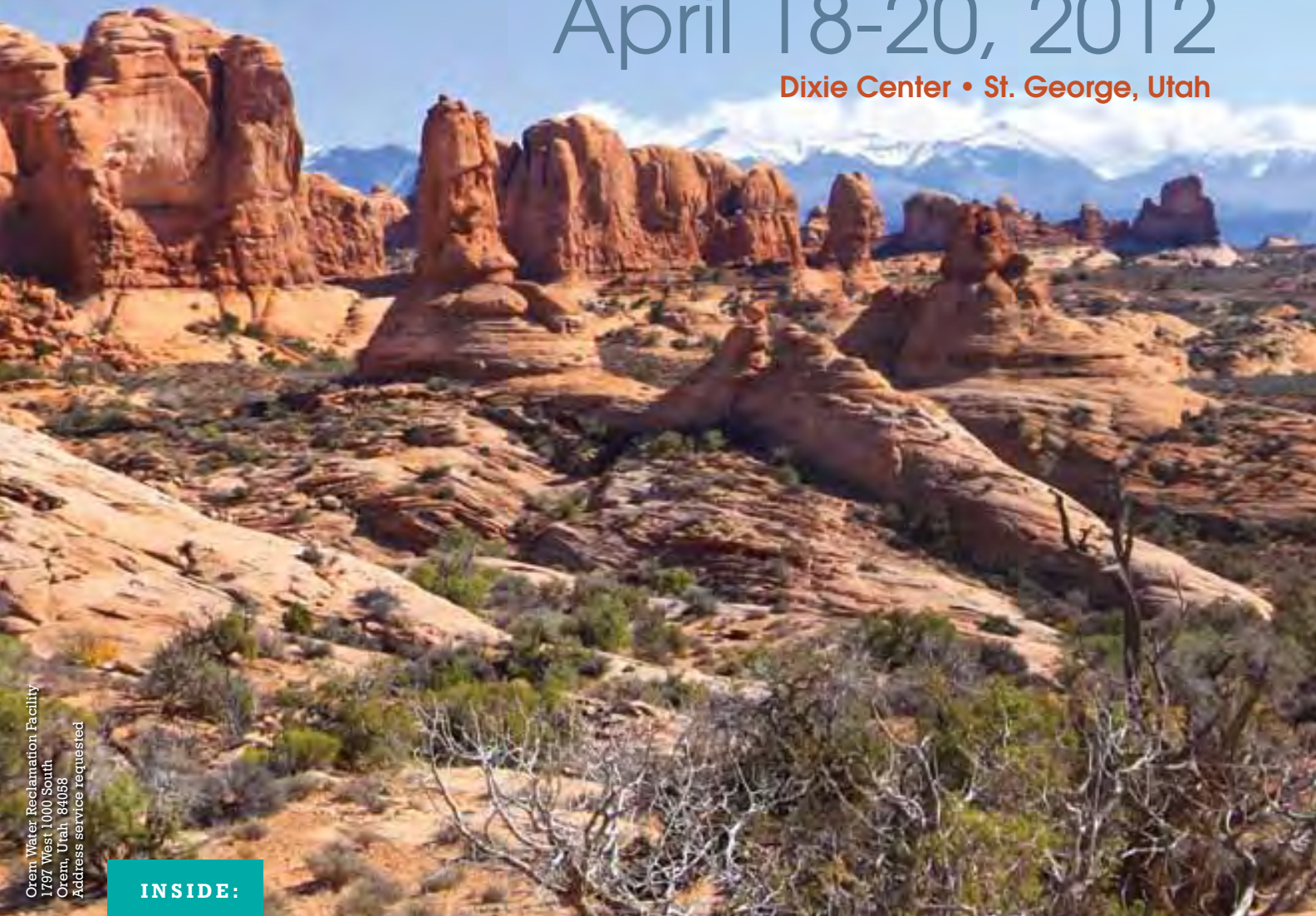


# DIGESTED news

*Celebrating 50 Years of Clean Water*

## WEAU Annual Conference April 18-20, 2012

Dixie Center • St. George, Utah



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Using the right tool ■ Laboratory Corner ■ PWO

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## SCREENINGS & HEADWORKS

### M2 RENEWABLES

Pretreatment, Primary Clarification

### DUMPSTERVEYOR

Solids Container Handling Systems

### HUBER TECHNOLOGY

Screens (Step, Perforated, Wedge Wire, Bar Rake, Septage, and for MBRs), Wash Press and Grit Washer

### JDV

Shaftless Screw Conveyors

### LAKESIDE

Screens (Perforated Plate, Bar, Septage, and for MBRs), Wash Press, Grit Removal and Grit Washers

### PLASTI-FAB

FRP Parshall Flumes, Weirs, Buildings, Slide Gates, Stop Logs

### POLYCHEM

Grit Removal System (Chain & Flight)

### WESTECH

Screens (Perforated Plate, Bar, Step, Sludge), Grit Removal, Grit Classifier

## AERATION & MIXING

### AEROMIX

Floating Aspirating Aerators and Coarse Bubble Diffusers

### ENVIROPAX

Fixed Vertical Mixers for Selector and Anoxic

### KOMAX

Static Mixers

### LANDIA

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### MTS

Jet Mixing and Aeration

### NEUROS

Single Stage High-Efficiency Turbo Blower

### AQUA TURBO

Surface Mixers and Aerators

### UNIVERSAL BLOWER

Positive Displacement Blower Package System

## TREATMENT PROCESSES

### AZZURO

Biological Odor Control Systems

### BIOWORKS

Lagoon-based Aeration System

### ENVIROQUIP

"Kubota" Membrane Bioreactor "SymBio BNR" Aerobic Digestion

### LAKESIDE

BNR Oxidation Ditches (Brush Rotors)

### WESTECH

Membrane Bioreactor (Flat Sheet)  
Oxidation Ditch (Vertical Turbine Aeration),  
Motorized Trickling Filter Rotary Distributor,  
Hydraulic Trickling Filter Rotary Distributor,  
Rotating Drum Aeration Process,  
Slow Speed Mixing with Fine Bubble Aeration

## CLARIFICATION

### M2 RENEWABLES

Alternative Primary Clarification

### LAKESIDE

Secondary Clarifiers

### NEFCO

FRP Stamford Density Current Baffles and Launder Covers

### POLYCHEM

Rectangular Non-Metallic Chain & Flight Clarifiers

### POLYTECH

Rotary Pipe & Helical Scum Skimmers

### WESTECH

Primary and Secondary Circular Clarifiers

## FILTRATION

### AQUA TURBO

Disk Filter

### M2 RENEWABLES

Continuous Up Flow Sand Filter, Phosphorous and Metals Removal, Filtration and Denitrification

### SEVERN TRENT

De-nitrifying Effluent Filter

### WESTECH

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## DISINFECTION

### PROCESS SOLUTIONS

"Microclor" Onsite Hypo Generation and Tank Shark Tank Mixer Systems

### PURAFIL

Dry Scrubbing Systems for Odor Control

### WATSON MARLOW

Peristaltic Chemical Feed Pump

### WEDECO

Low Pressure/High Intensity UV System

## DIGESTION

### AEROMIX

Coarse Bubble Diffusers

### MTS

Aqua Turbo

### WESTECH

Mechanical Mixing, Digester Covers & Digester Heating Systems

## BIOSOLIDS PROCESSING

### BCR ENVIRONMENTAL

Class A Biosolids Treatment

### BDP INDUSTRIES

Gravity Belt and Rotary Thickeners, and Belt Filter Press

### ENPRO

Dry Chemical Feed Systems

### FENTON

Class "A" Sludge Drying Process

### FLUID DYNAMICS

Liquid and Dry Polymer Blending Systems

### HUBER

Screw Thickener, Screw Press, Disc Thickener and Belt Dryer

### WESTFALIA

Centrifuges

## PUMPING EQUIPMENT

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### LAKESIDE

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### WATSON MARLOW

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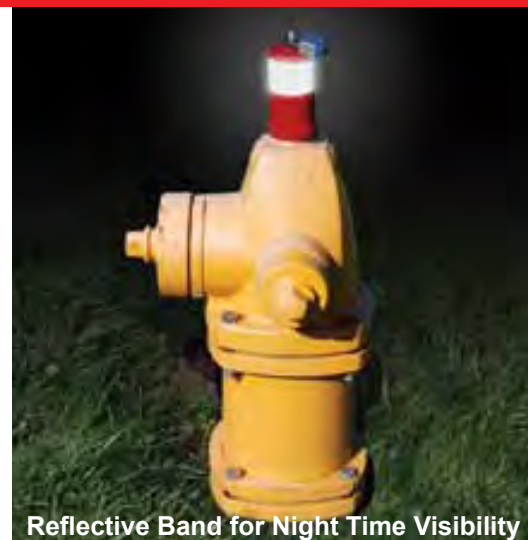
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Dan Olson

## Looking back with fondness

**O**ur Annual Conference is just around the corner. The conference committee has put together an incredible program full of wonderful material for all levels of wastewater professionals. There are tracks for collection operators, treatment operators, managers, consultants, and engineers. Along with a great technical program there will be plenty of extracurricular activities for the entire family. Take the opportunity to participate in one or more of the fun and exciting events. It promises to be another wonderful time.

On another note, I have been thinking about who will be the next generation of wastewater treatment plant operators. Not many people start out life planning to work in a wastewater treatment plant, they just seem to fall into it, no pun intended. As a young man, I began planning what I was going to do to secure an income for my family. I thought about many different careers I could choose. I first thought about the medical field and became an EMT.

**“The first time I saw a wastewater treatment plant was my first day running a WWTP so I had no idea what I was getting into. With mentoring from several experienced operators I became somewhat successful.”**

I volunteered with an ambulance association for two years. I got to know the doctors and nurses I worked with. After consulting with them and learning the hours required of them they convinced me that the medical profession was not for me.

I then looked at chemistry as my chosen field. I have always enjoyed blowing things up so it seemed like a good fit. After several successful explosions at the University of Utah Chemistry department they gladly graduated me. I began working in a chemistry lab testing turkeys. I tested everything you can test on a turkey. I tested the insides, the outsides, the blood, the feathers, the feed, and even the droppings. Quickly, I learned that in the real world, companies frown on explosions so chemistry became mundane to me. Trying to cure my boredom I looked for opportunities to get out of the lab.

That opportunity surfaced as superintendent of the notorious Moroni Wastewater Treatment Plant. The first time I saw a wastewater treatment plant was my first day running a WWTP so I had no idea what I was getting into. With mentoring from several experienced operators I became somewhat successful in running the plant, and to my astonishment, I liked it. Every day was something new, and not just at headworks. Although I did not intentionally start out with the aspiration of treating wastewater, I must say it has been good to me.

Now that my time as President of the WEAU is coming to an end, I look back with fondness at the experiences I have had. I have worked with wonderful people, those on the board now and in the past. I look forward to many more years of enjoyable experiences working with the good people of the WEAU. [en](#)

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## Editor's Message

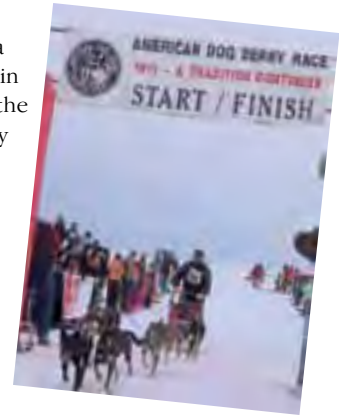
# Working towards a common goal

I competed in a dog sled race in Ashton, Idaho, in the middle of February and was reminded of something I hope we can all relate with.

In running a team of dogs, one of the greatest challenges is having good lead dogs and pairing dogs together that get along. The difficulty with this is that I have dogs with varying personalities, strengths and weaknesses. Not all of my dogs are leaders, some of my best pullers are not great leaders and of course not all of my dogs get along with each other. The amazing thing about a dog team is that when you hook them on the gangline in their proper order even dogs of varying dispositions, strengths, weaknesses, likes and dislikes will still work together for the common goal.

I think we need to be reminded of this as our industry grows and diversifies. We are all different and many of us have different ideas of where we should be headed. Some of us are operators, vendors, engineers, manufacturers and regulators but we have all come together to work towards a common goal. I like to think of how much our industry has done to promote human health and disease prevention. We take this for granted today, but this is definitely a direction that was taken years ago and we should always be pointed towards.

My thanks go out to the many individuals and organizations that use their diversity to keep our industry going in the right direction, thanks for being great lead dogs. Enjoy this issue, and I hope to see you all at our Annual Conference. [DA](#)



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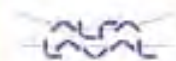
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# WEAU Annual Conference

April 18-20, 2012

Dixie Center • St. George, Utah

*See You There!*



## WEAU Annual Conference April 18-20, 2012

### 2011 PRE-CONFERENCE WORKSHOP

Sustainable nutrient treatment for Utah's future

Tuesday, April 17, 2012

The Dixie Center, St. George, Utah

The 2012 WEAU Pre-Conference addresses the challenges of meeting Utah's growing water quality and supply demands in a sustainable way. With Utah's population expected to grow to 6.8 million people by 2060, where will our water come from and what will our industry have to do differently as new sources of clean water become increasingly difficult to find and develop? With statewide nutrient control serving as the water quality backdrop, the Pre-Conference will examine regulatory framework, water development, management, and technical innovations needed for sustainable water supply and water quality in Utah's future. Included will be real-world examples of how management and engineered systems are being planned and used to sustainably

meet future water quality standards and develop or better use our resources. Register online at <http://www.weau.org/resources/upcoming-seminars>. The cost is \$100.00 including break, snacks and lunch. Do not miss this program:

#### 8:00 – 8:50 AM

Session 1: 'Nutrient criteria and standards development process – Status of nutrient regulation in the US and Utah,' WALTER L. BAKER, UTAH DWQ

#### 9:00 – 9:50 AM

Session 2: 'Beyond the mirage – Meeting Utah's growing water needs,' TODD STONELY, UTAH DWR

#### 9:50 – 10:10 AM BREAK

#### 10:10 – 11:00 AM

Session 3: 'Modeling nutrient impacts in Utah's rivers and streams,' NICK VON STACKELBERG, UTAH DWQ

#### 11:10 – 12:00 AM

Session 4: 'Key outcomes from WERF nutrient challenge and where do we go from Here?' JB NEETHLING, HDR ENGINEERING

#### Lunch: 12:00 – 1:15 PM

#### 1:15 – 2:05 PM

Session 5: 'energy neutral treatment plants,' DRU WHITLOCK, CH2MHILL

#### 2:15 – 3:00 PM

Session 6: 'Limits of nutrient removal technologies' ROD REARDON, CAROLLO ENGINEERS

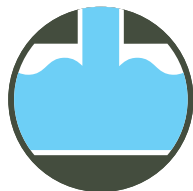
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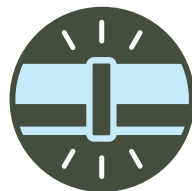
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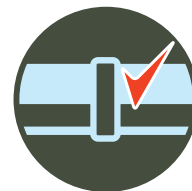
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## WEAU Annual Conference April 18-20, 2012

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## WEAU Annual Conference April 18-20, 2012

# REGISTRATION FORM

WEAU Members can pay online at [www.weau.org](http://www.weau.org) or register by filling out this form and sending in a check. To expedite processing, we encourage you to register online. When you register online, you will have the option to pay with credit card or send a check.

Name: \_\_\_\_\_ Spouse/Guest Name: \_\_\_\_\_

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Late registration cannot guarantee a registration gift

### General Conference Registration Fees

	PRE-REGISTER Prior to March 23, 2012	REGISTRATION AFTER March 23, 2012	AMOUNT
Member	\$250.00	\$275.00	
Non-member	\$295.00	\$315.00	
Student	FREE		
Wednesday (one day only)	\$150.00(member) \$165.00 (non-member)	\$160.00 (member) \$175.00 (non-member)	
Thursday (one day only)	\$150.00 (member) \$165.00 (non-member)	\$160.00 (member) \$175.00 (non-member)	
Pre-Conference: April 17*	\$100.00 (includes lunch)		
Extra Lunch**	\$20 (Partners Program includes Wed. lunch)		
Banquet Dinner**	\$30		
Partners Program	\$50		
Extra Registration Gift***	Circle one: Blue Maroon	\$20	
* See <a href="http://www.weau.org">www.weau.org</a> for details ** For guests of conference attendees		<b>TOTAL ENCLOSED:</b>	

**Please do not submit your form without payment!**  
**Registrations received without payment will not be processed**  
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**TO REGISTER:** Go online or complete form and make checks payable to WEAU and mail to:  
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**PLEASE DO NOT SEND REGISTRATION AFTER April 11, 2012**  
**AFTER THIS DATE YOU MUST REGISTER ON-SITE OR ONLINE.**

View the draft Conference Program at: [www.weau.org](http://www.weau.org)  
 Conference Program will be updated regularly on the website; check back often.

Clint Rogers, Secretary/Treasurer  
 crogers@carollo.com 801.233-2519

### Registration Gift Color Preference:

Circle one: **Blue** **Maroon**

\*\* For guests of conference attendees

\*\*\* Registration gift will be a custom duffle bag.  
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**Conference information**

When you register for the WEAU Annual Conference, the following is included in your fee:

	Wednesday Opening Luncheon	Thursday Luncheon	Thursday Awards Banquet	Break Refreshments
Full Conference	Yes	Yes	Yes	Yes
Student	Yes	Yes	Yes	Yes
Wednesday Only	Yes			Yes
Thursday Only		Yes	Yes	Yes

**Items NOT included in registration:**

Item	Time	Additional Cost 1
ATV Ride	Monday, April 16	None
Turkey Shoot	Tuesday, April 17	\$20 per person; includes clays
Operations Challenge & Young Professionals BBQ	Wednesday, April 18, 6 to 8 PM	None
Young Professionals/Students/First Time Conference Attendees Breakfast	Thursday, April 19, 7:30 AM to 8:30 AM	None
Young Professionals/Students Tour of Quail Creek WTP	Thursday, April 19, 4:20 PM to 6:30 PM	None
Golf Tournament	Friday, April 20, 10 AM	\$50 per person
Mountain Bike Ride	Friday, April 20, 10 AM	None; bring or rent bike



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**WEAU Annual Conference** April 18-20, 2012

## **55TH ANNUAL WATER ENVIRONMENT ASSOCIATION OF UTAH CONFERENCE**

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April 18 - 19, 2012

The Dixie Center

1835 Convention Center Drive, St. George, Utah 84790

HELLO VENDORS. We are expecting a big turnout this year for the 55th Meeting and hope to see you there. If you are looking for the decision-makers from Utah's treatment facilities – this is your show. Thanks for your past support! We look forward to visiting with you again!

### **Exhibition Information**

#### **Exhibition Hours**

Wednesday, April 18 - 8:00 - 11:30 a.m. & 1:30 - 4:30 p.m.

Thursday, April 19 - 8:00 - 11:45 a.m. & 1:00 - 3:45 p.m.

#### **Set-Up/Dismantling of Exhibits**

Exhibitors may begin set up on Tuesday, April 17 at 12:00 noon. Set-Up must be completed no later than 6:00 p.m. on Tuesday, April 17.

All materials must be removed no later than 6:00 p.m. on Thursday, April 19. No packing of exhibits or materials may begin prior to 3:45 p.m. The booths are 10' x 10' long with (4) truck/large vehicle booths 40' L x 20' W available this year.

#### **Included in the booth rate**

6' draped table, one chair, three name badges - additional Badges - \$5.00 ea.

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Additional meals for your 2nd, 3rd, etc. representatives are \$20.00 per day.

We will be located in Exhibit Hall 'C' in the Dixie Center. Booths are available on a first come first served basis. Please pick your #1, #2, #3 choices.

#### **Cancellations and Refunds**

Cancellations must be received in writing at **WEAU:**

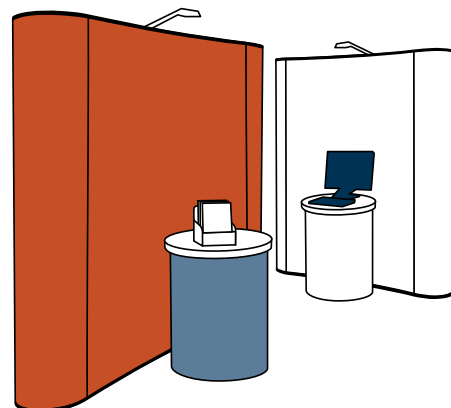
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Cancellations received on or before March 30, 2012, will receive a 75% refund.

Those received after March 30, 2012 will not receive a refund.

#### **QUESTIONS:**

Dan James - jamesd@cvwrf.org or Clint Rogers – crogers@carollo.com





## WEAU EXHIBIT SPACE RESERVATION

Name: \_\_\_\_\_ Contact Person: \_\_\_\_\_

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**Vendors are responsible for 120V power: to be purchased from the exhibit hall.**

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**Booth Separation: Companies from which we desire booth separation - - Identify by company name.**

Should booth separation supersede location requested? YES NO

1. \_\_\_\_\_

2. \_\_\_\_\_

Please print a brief description (not to exceed two lines) for printing in the conference program.

\_\_\_\_\_

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**COMPANY REPRESENTATIVE (up to 3 name tags -Extra Name Tags are \$5.00)**

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TOTAL FEE \$ \_\_\_\_\_

E-MAIL your form to jamesd@cvwrf.org for QUICK selection, BUT also MAIL form and check to:  
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 For WEAU Exhibitions Management Use:

Company name \_\_\_\_\_ Date Application and Payment Received \_\_\_\_\_

Space Number Assigned \_\_\_\_\_ Total Space Cost \$ \_\_\_\_\_ Extras Cost \$ \_\_\_\_\_

Space Assignment Date \_\_\_\_\_ Accepted for the WEAU By \_\_\_\_\_

## TECHNICAL SCHEDULE

WEDNESDAY, APRIL 18					
	Sunbrook A	Sunbrook B	Sunbrook C	Entrada A	Entrada B
8:30 - 11:30	Operators Challenge				Water Quality Board Meeting
Session	Sunbrook A	Sunbrook B	Sunbrook C	Entrada A	Entrada B
A	Operator Certification Review	Environmental Issues	Innovative Approaches	Collection Systems	Innovative Approaches
	Moderator - TBD	Moderator - TBD	Moderator - TBD	Moderator - Greg Neff	Moderator - TBD
1:40 - 2:20	Attached Growth Systems	Bioremediation of Produced Water	Student Competition - Central Valley WRF Problem Statement	TV Equipment Options	Evaluation of Energy Saving Blower Technologies for Wastewater Aeration
	Paul Krauth	Sheril Burton	Students	Dean Monk	Thomas McCurdy
2:20 - 3:00	Attached Growth Systems	Analysis of External Environmental Impacts and Costs from Point Source Nutrient Control	Capital vs. Operating Cost – Understanding the True Lifetime Costs of Rotary Drum Thickeners	Aging Infrastructure Meets Increased Demands: Replacement of 40 year old Lindon Lift Station	Tertiary MBBR technology proves innovative solution for cold weather nitrification
	Paul Krauth	John Mackey	Omar Gadalla	Gary Vance	James Robinson
3:00 - 3:40	Break - Exhibit Hall	Break - Exhibit Hall	Break - Exhibit Hall	Break - Exhibit Hall	Break - Exhibit Hall
3:40 - 4:20	Suspended Growth Systems	What does Congress know about Utah's water quality and when did they know it?	It's Raining Sludge: Using a Lithium Chloride Tracer to Study Linear Motion Mixers	Trenchless Construction Methods	Nutrient Removal- an overview on current practices with a detailed insight on EBPR and anaerobic ammonia oxidation
	Paul Krauth	Emilie Flemer	Darrel Dixon	Brent Packer/Jon Nix	Ramesh Goel
4:20 - 5:00	Suspended Growth Systems	The EPA Has Given Notice About Finally Fleshing Out Post-Construction Requirements for Municipal Storm Water - What Will It Look Like?	Innovations and Advancements in UV Lamp Technology and UV Reactor Design	Data Collections for Sewer Cleaning - Tracking Equipment Use	Anita-Mox-Annamox Bacteria for Ammonia Remova
	Paul Krauth	Harry Campbell	Jen Muller	Evan Housley	Brandy, Nussbaum

## TECHNICAL SCHEDULE

THURSDAY, APRIL 19							
Session	Sunbrook A	Sunbrook B	Sunbrook C	Entrada A	Entrada B	Entrada C	
B	Operator Certification Review	Facility Design	Nutrients	Collection Systems - Implementation of Sanitary Sewer Management Plans (SSMP)	Collection Systems - Math Review for the Certification Exam	Partners Program	
	Moderator - TBD	Moderator - TBD	Moderator - TBD	Moderator - Brent Packer	Moderator - Lonni Rasmussen		
7:00 - 8:30					POTW Managers Meeting		
8:40 - 9:20	Solids Separation Methods	A Brief History of Wastewater Treatment (Focus on Ogden)	Oxidation Ditch Conversion for Improved Process Performance and Nutrient Removal	Development of a Model SSMP	Operator Math 1		
	Paul Krauth	David Miklas	James Goodley	Leland Myers	Lonni Rasmussen		
9:20 - 10:00	Solids Separation Methods	What the Flux? - Membrane Bioreactor Discussion	Nutrient Removal Experience with Rotating Media IFAS Process	Design Standards and Inspections	Operator Math 2		
	Paul Krauth	Justin Logan	Mark Biesinger	TBD	Lonni Rasmussen	9:00- 11:00	
10:00 - 10:40	Break - Exhibit Hall	Break - Exhibit Hall	Break - Exhibit Hall	Break - Exhibit Hall	Break - Exhibit Hall	Partners Workshop TBD	Water Class for Kids With Sherry from South Valley
10:40 - 11:20	Digestion	Start-up Challenges in a Slow Economy: When Less than Design Minimum Rules	Modeling and Performance of an Integrated Fixed-film Activated Sludge (IFAS) process, utilizing Fixed-bed Media, at both Pilot and Full Scale Conditions	Modeling Options and System Evaluation and Capacity Assurance Plans (SECAP)	Operator Math 3		
	Paul Krauth	Chris Machado	Steven Myers	TBD	Lonni Rasmussen		
11:20 - 12:00	Digestion	Lessons from the Lagoon Embankment Failure at Stockton	BNR with Class A Biosolids - Orem's Latest Upgrade	Mobile GIS – Accessing Your Data in the Field	Operator Math 4		
	Paul Krauth	John Mackey	Scott Rogers	Matt Stayner	Lonni Rasmussen		

## TECHNICAL SCHEDULE

THURSDAY, APRIL 19					
Session	Sunbrook A	Sunbrook B	Sunbrook C	Entrada A	Entrada B
C	Operator Certification Review	Regulatory/ Environmental Issues	Pumping (1/2 session), Lagoon Technologies (1/2 session)	Collection Systems - Sanitary Sewer Management Plans (SSMP)	Collection Systems - Operators Certification Training
	Moderator - TBD	Moderator - TBD		Moderator - Don Telford	Moderator - Lonn Rasmussen
1:40 - 2:20	Laboratory Basics	What's New at DWQ!	Vertical Turbine pump design when used in a variable speed environment.	Flow Metering	Certification Review Part I
	Paul Krauth	Walt Baker	Bill Ellis	TBD	Lonn Rasmussen
2:20 - 3:00	Laboratory Basics	Great Salt Lake Water Quality Strategy	Benefits of Reciprocating "Non Close-Tolerance" Positive Displacement Pumps in Sludge Pumping Applications	Pretreatment for the Collection Operator	Certification Review Part II
	Paul Krauth	Gardberg, Jodi	William Ormsby	TBD	Lonn Rasmussen
3:00 - 3:40	Break - Exhibit Hall	Break - Exhibit Hall	Break - Exhibit Hall	Break - Exhibit Hall	Break - Exhibit Hall
3:40 - 4:20	Basic Microbiology	Utah's Big Spill: Red Butte's Journey to Recovery	Lagoon System Enhancement with Bio-Domes (Poo-Gloos): Three Case Studies in Utah and Nevada for BOD, TSS, N and P Removal	Sewer Backup Prevention Best Management Practices	Certification Review Part III
	Paul Krauth	Whitehead, John	Kraig Johnson	Lance Mergens	Lonn Rasmussen
4:20 - 5:00	Basic Microbiology	Reductions in Phosphorus Content in Dishwashing Detergent and Related Implications on Water Quality	Cold Weather Nitrification with IFAS Technology	DWQ Implementation - Inspections and Timing	Certification Review Part IV
	Paul Krauth	Trevor Lindley	Chuck McCall	TBD	Lonn Rasmussen

# SEE YOU AT THE SHOW!

## April 18-20, 2012



## TECHNICAL SCHEDULE

FRIDAY APRIL 20					
Session	Sunbrook A	Sunbrook B	Sunbrook C	Entrada A	Entrada B
D	Operator Certification Review	Utility and Asset Management	Residuals and Biosolids Management	Collection Systems	Sustainability
	Moderator - TBD	Moderator - TBD	Moderator - TBD	Moderator - Michael Foerster	Moderator - TBD
8:00 - 8:40	Nutrient Removal Processes	All Hazards Utility Risk Management – Are You Covered?	Biosolids Composting Odor Control Systems that Work	Jeremy Ranch Lift Station Rehabilitation Project	Algae-to-Biofuel: Test Case and Prospect
	Paul Krauth	Bryon Elwell	Todd Williams	Blayne Bowden	Mary Martis
8:40 - 9:20	Nutrient Removal Processes	Is our Maintenance Keeping Up with the Times?	Some Like it Hot: Thermal Biosolids Drying at a Small WWTP	Central Weber Sewer Improvement District's BDO Outfall Evaluation and Alternatives Analysis	Simple Optimization Method to Determine Best Management Practices to Reduce Phosphorus Loading in Echo Reservoir, Utah
	Paul Krauth	Myron Bachman	Jason Broome	Bryan Mansell	Bereket Tesfatsin
9:20 - 10:00	Disinfection	Advancing Asset Management through Risk Assessment	Program Update: Land Application of Class B Biosolids for the North Davis Sewer District	Collection Systems Jeopardy	MythBusters – Sustainability Considerations for Wastewater Treatment Edition
	Paul Krauth	Donald Champenois	Bill Fasth	Michael Foerster	John Richardson

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--	--

533 West 2600 South Suite 275 Bountiful, Utah 84010 (801) 299-1327 [www.aquaeng.com](http://www.aquaeng.com)

## OPERATORS CHALLENGE

We are excited for the Operators Challenge 2012 in St. George. April is coming up fast and the teams are practicing hard so that they can flush the competition. We want to thank all the management of the Operators Challenge teams for their continued support in making this such a great event. We have eight teams this year and that will

make the competition quite fierce.

We have some great judges who are former participants in the Challenge and we are sure that they will do a fantastic job. Judging requires nerves of steel as well as a good sense of humor. They have to keep a sharp eye out for infractions like dropping a coworker down a manhole, tool breakage or

leaking pipes.

The teams are working under tremendous amounts of stress to complete the Challenge in as little time as possible. This makes the support of family and friends invaluable to cheer them on. We look forward to seeing you there to join in this nail-biting event.

## OPERATORS CHALLENGE TEAMS

### Participants

#### **Cottonwood- Tux-It-In**

John Lewis- Coach  
Mark Lenard  
Jeff Murphy  
James Herrera  
Todd Smart

#### **Provo City**

Steven Bunker  
John Hupworth  
Joel Bennett  
MaKay Lloyd

#### **North Davis- Gold Flush**

Gordon Call  
Mark Mudrow  
Jason Stansfield  
Jose Zamora

#### **Central Weber- Vortex**

Shawn Wilson- Coach  
Kevin Draper  
Brody Fluto  
Ryan Ewing  
Clay Marrett

#### **North Davis- Royal Flush**

Bryce Southworth  
Tom Anderson  
Mark Young  
Brian Lamar

#### **Central Valley- Wasted Gas**

Josh Hunsaker- Coach  
Mike Brown  
Jeremy Deppe  
Becky Tanner  
Hadley Gunn

#### **Snyderville- Sewer Saviors**

Cody Snyder  
Nick Brown  
Dustin Lewis  
Dakody Gines

#### **Magna- Magna Flow**

Ed Tucker- Coach  
Rob Jaterea  
Dallas Henline  
Clint Giles  
Beau Lamper

#### Operators Challenge Judges

#### **Process Control**

Marlo Davis  
Gordon Evans

#### **Lab**

Sherry Sheffield  
Tiffini Adams  
Leigh Nelson  
Roger Clement

#### **Collections**

Blain Bowden  
Ray Henninger  
Tory deWolfe

#### **Maintenance**

Dave Barnes  
Chris Reiley  
Myron Bachman

#### **Safety**

Brett Olson  
Eddie Alex  
Kevin Gallagher  
Gary Faulkner

#### **A Big Thank You to:**

The PWO and the Operation Challenge Committee would like to give a big thank you to the management of each of the entities that have sponsored a team this year. We would also like to thank the Supervisors and Operators that cover the operators that are practicing and participating in the Challenge. We know that this is a team effort, from the people that cover shifts to the managers and to the participants, Thank You All for making this a great event.



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- Direct filtration of MLSS with submerged membranes achieves solids removal to submicron levels.



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- Small footprint.
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## WEAU Annual Conference April 18-20, 2012

### SPORTING CLAYS

**Cost:** \$20

**Date:** Tuesday, April 17, 2012

**Time:** 4:00pm

**Location:** Purgatory Clay Sports

**Directions:** From St. George, take I-15 North to Exit #16. Go South on SR-9 to the 2nd set of stoplights. Turn right (South) and follow the Southern Utah Shooting Sports Park signs.



**WHAT YOU WILL NEED:**

**A shotgun:** Bring your own or rent one at the club for \$10. The most common is a 12 gauge shotgun but many people shoot with 20 gauge, 28 gauge and even .410's

**Ammunition:** A target or light game load between 7 1/2 - 9 shot. You will need 50 rounds. \$7 a box at the Club.

**Ear and Eye Protection:** All people at the range are required to wear ear and eye protection at all times.

**Hat:** We cannot predict where broken clays will land after they are shot so we recommend a hat to protect your face.

**Clothes:** Wear good shoes or boots that will allow you to walk the course in comfort. We discourage the use of sandals. Comfortable clothes that allow you free movement will work the best.

**Registration Fees and Forms are Due by March 21st.**

Contact Dan Olson (435) 241-0204 or Email [WWTP@tooelectricity.org](mailto:WWTP@tooelectricity.org) for info. Register one person or a team of five.

Please make checks payable to WEAU or register online at [www.weau.org](http://www.weau.org).

Name \_\_\_\_\_

Contact Phone \_\_\_\_\_

Contact Email \_\_\_\_\_

Name \_\_\_\_\_

Contact Phone \_\_\_\_\_

Contact Email \_\_\_\_\_

Name \_\_\_\_\_

Contact Phone \_\_\_\_\_

Contact Email \_\_\_\_\_

### GOLF TOURNAMENT

**Format:** Four-person scramble

**When:** Friday, April 20, 2012 Tee times starting at 10:00 am

**Where:** Sunbrook Golf Course St. George, Utah

**Green Fees:** \$50.00 per person (including cart)

**Lunch:** Box lunches and drink provided

**Contact:**

Jeff Beckman  
Bowen, Collins & Associates  
154 East 14000 South, Draper, UT 84020  
(801) 495-2224  
[jbeckman@bowencollins.com](mailto:jbeckman@bowencollins.com)

**Registration forms and fees are due by April 6, 2012**

Register online at [www.weau.org](http://www.weau.org) or by returning this registration form to Jeff Beckman (see above) along with a check payable to WEAU Golf Tournament.

Contact Jeff Beckman at (801) 495-2224 for team preference, or we will match single players to fill foursomes. Twelve foursome spots are available on a first-come, first-serve basis.

Name \_\_\_\_\_

Contact Phone \_\_\_\_\_

Contact Email \_\_\_\_\_

Name \_\_\_\_\_

Contact Phone \_\_\_\_\_

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## WEAU Annual Conference April 18-20, 2012

# JOIN US FOR A DAY OF FUN IN THE SUN

## Annual Mountain Bike Tour of the Bearclaw Poppy Trail Friday, April 20, 10:00 AM

If golf is not your game, come join us for a group ride of the Bearclaw Poppy Trail (aka Green Valley Trail). Located just six miles west of St. George, the Bearclaw Poppy Trail covers miles of terrain for the mountain biking enthusiasts. The ride itself is about 2-3 hours and is moderate to high aerobic activity. Please note, the ride is an intermediate to advanced ride and is not recommended for absolute beginners. It can be ridden as an out and back, or a loop. Either way you will get to experience the 'Three Fingers of Death', the 'Three Sisters (aka Acid Drops) and 'Clavicle Hill. Do not let the names scare you off, as there are cheat routes around each one. Enjoy the beautiful desert landscape as you wind down over rolling hills.

\*Registrants are responsible for their own rental equipment. Helmets are required\*

For more information, questions or to register please contact Darrel Dixon at Stantec Consulting ([darrel.dixon@stantec.com](mailto:darrel.dixon@stantec.com)) or fax the registration form to (801) 266-1671. Details regarding meeting location and local bike rental locations attached.

So we can get a count, please send registration forms by April 13, 2012

Follow the directions from the Dixie Center to the ride's starting place. The ride will start at 12:00 PM. Bring enough water for a 2-3 hour ride, plus plenty of sunscreen. Suggestions on rental shops are also attached.

### DIRECTIONS

From: Dixie Center 1835 S Convention Center Dr  
St George, UT 84790 US

To: 1799 Navajo Dr St George, UT 84790-7734 US

### DRIVING DIRECTIONS

1. Start out going NORTHEAST on S CONVENTION CENTER DR toward 1670 SOUTH. (0.58 miles)
2. Turn LEFT onto S BLUFF ST/RIVERSIDE DR. Continue to follow S BLUFF ST. (0.30 miles)
3. Merge onto I-15 S via the ramp on the LEFT toward LAS VEGAS. (1.44 miles)
4. Take EXIT 4 toward BLOOMINGTON. (0.35 miles)
5. Turn RIGHT onto E BRIGHAM RD. (0.01 miles)
6. Turn LEFT onto PIONEER RD. (0.65 miles)
7. Turn RIGHT onto MAN OF WAR RD. (0.79 miles)
8. Turn LEFT onto W BLOOMINGTON DR S. (0.98 miles)
9. Turn LEFT onto UTE RD. (0.27 miles)
10. Turn LEFT onto NAVAJO DR. (0.05 miles)
11. Turn RIGHT to stay on NAVAJO DR. (0.22 miles)
12. End at 1799 Navajo Dr St George, UT 84790-7734 US

Total Estimated Time: 13 minutes

Total Distance: 5.64 miles

### RENTAL OPTIONS

#### 1. Bicycles Unlimited

90 South 100 East, St. George, UT 84770

Toll Free: 1-888-673-4492

<http://www.bicyclesunlimited.com/>

#### 2. Red Rock Bicycle

446 W. 100 S. (CORNER OF 100 S.AND BLUFF ST.)

St. George, UT 84770

Phone 435-674-3185

Fax 435-674-7730

<http://www.redrockbicycle.com/>

#### 3. Zion Cycles

868 Zion Park Blvd., P.O. Box 624, Springdale, UT 84767

Phone: (435) 772-0400

Fax: (435) 772-0500

<http://zioncycles.com/>

Name	Contact Phone	Contact Email

### Assumption of inherent risk in outdoor activities:

Participants in this activity recognize there are risks integral to the activity. Although it is possible to minimize these risks, they cannot be eliminated without destroying the unique nature of the activity. Participants recognize that this activity occurs in the wilderness in environments that include canyons, mountain and desert terrain, remote from medical facilities, roads and communication sites. These and other risks and hazards can result in injury, damage, permanent disability, death or loss.

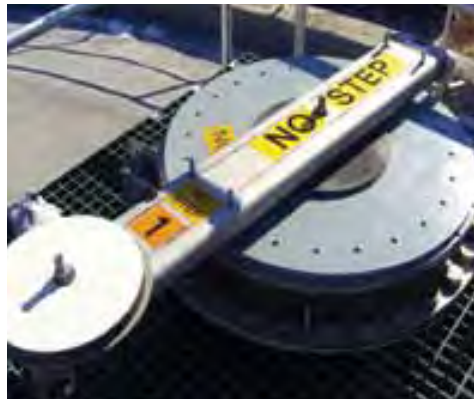
By voluntarily signing up to participate in this event, participant agrees that they are responsible and liable for their own wrongful or negligent acts which are committed. Event participants shall defend, indemnify, save and hold harmless WEAU, including its officers and employees, from and against any and all demands, liabilities, claims, damages, actions, and/or proceedings, in law or equity, including reasonable attorney's fees and costs of suit, relating to or arising from the actions or omissions of event participants or their respective employees.



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Designed to be installed in piping systems, the Foam Separator removes foam by spraying the gas/foam mix with water as the biogas flows through the system, protecting equipment downstream such as boiler/heat exchangers, engine-generators, or Waste Gas Burners/Flares utilized to safely dispose excess gas.



## WEAU Annual Conference April 18-20, 2012

### YP AND STUDENTS

#### Young Professionals and Students Committee Activities:

- **Operations Challenge/Young Professionals Barbecue**, Wednesday April 18 from 6-8pm, Bluff Street Park, 600 N Bluff Street/18
- **Young Professionals/Students/First Time Conference Attendees Breakfast**, Thursday April 19 from 7:30-8:30am, Cracker Barrel (across from Dixie Center)
- **Young Professionals/Students Tour of the Quail Creek Water Treatment Plant**, Thursday April 19 from 4:20-6:30pm, meet at Conference registration desk for carpooling
- **Student Paper Competition Presentation**, Friday April 20, see conference schedule for more information

If you are interested in any of the above activities please RSVP to Christina Osborn at [cosborn@jub.com](mailto:cosborn@jub.com) or 801-886-9052

#### Calling all Young Professionals and Students!

- Are you currently a student?
- Are you a recent graduate?
- Have you worked in the Wastewater Industry less than 5 years?
- Are you 35 years old or younger?
- Have you recently joined WEAU?

If you have answered yes to ANY of the above questions, then you are a WEAU Young Professional!

If you are interested in being a part of the WEAU YP/Student Committee please email Christina Osborn at [cosborn@jub.com](mailto:cosborn@jub.com). The Committee plans networking activities, service projects, and valuable training sessions to help you throughout your career.

### FRIENDS OF WEAU PRE CONFERENCE ATV RIDE



**Monday April 16, 2012**

4-6 hour ride in scenic Southern Utah

If interested please contact:

Dave Hutchinson

801-541-4949

or

Blair Gubler

435-680-2348

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## WEAU Annual Conference April 18-20, 2012

### PARTNER'S PROGRAM

April 18-19, 2012

Dixie Conference Center

Come join us for family friendly activities

#### Wednesday, April 18

8 - 10:00 am

Welcome / Registration

9 - 12:00 pm

Operators Challenge

12 - 1:30 pm

Opening Luncheon

(partners included, children extra)

2 - 6:00 pm

Bounce House (JC Snow Park)

6 - 8:00 pm

Operator's BBQ (park)

#### Thursday, April 19

10 - 11:30 am

Workshop (Partners)

10 - 11:30 am

Water Class for Kidswith

Sherry from South Valley

12 - 1:30 pm

Lunch, to be announced

2 - 4:00 pm

to be announced (Partners)

7 - 9:00 pm

Awards Banquet

(Partners included, children extra)

#### Partners welcome to attend:

- ATV Ride (Monday)
- Sporting Clays (Tuesday)
- Golf Tournament (Friday)
- Bike Tour (Friday)

See flyers for more details or call

Amy Olson (435) 830-2822

[farmhouse@wirelessbeehive.com](mailto:farmhouse@wirelessbeehive.com)

#### Other Activities include:

- Summit Athletic Club -- discount rates  
2-day unlimited pass  
Single day pass  
Tennis Lesson  
Regularly scheduled yoga or fitness training included.
- Golf Lesson \$75 per hour up to 10 golfers, sign up at registration; contact Jeff Beckman at (801) 495-2224 or [jbeckman@bowencollins.com](mailto:jbeckman@bowencollins.com)

See website for updates

To reach Utah's water industry professionals through the *Digested News* magazine and its targeted readership, contact Chad at your earliest convenience to discuss your company's promotional plans for 2012

Chad Morrison,  
*Marketing Manager*

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F: 866-985-9799

E: [chad@kelman.ca](mailto:chad@kelman.ca)



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## 10 FUN AND FREE ACTIVITIES

Provided Courtesy of the St. George Area Chamber of Commerce  
Written by: Susi Lafaele

There is always something to do here in St. George. Here are a few fun and free activities for you and the whole family.

### 1. Take a Drive

One of the best ways to see scenic southern Utah is by car. Washington County is known for its picturesque landscape. Drive through parts of Dixie National Forest's nearly two million acres, making it the largest national forest in the state, or drive 20 miles through the Virgin River Gorge, replete with local flora and fauna, and breathtaking views of steep cliff walls.

### 2. Springdale

Known as 'The Gateway to Zion National Park,' Springdale lies at the park's southwest entrance and is the closest gateway city. It is a destination resort for the outdoor lover and a haven for artists. Walk the main street of Springdale and catch sights of an elk and llama farm, or stop and browse any number of art galleries and antique shops. Vivid and striking views of Zion National Park welcome the visitor to the quaint town of Springdale.

### 3. The St. George Chess Center

Named "Chess Center of the Year" in 2006 by the U.S. Chess Federation, the St. George Chess Center invites both the young and old to join millions of others in one of the world's most popular games. With murals of princesses and knights, and dragons and castles, stop by and learn more about chess grandmaster Igor Ivanov, who once called Utah home. For more information, visit [www.stgeorgechess.com](http://www.stgeorgechess.com) or call 435-656-1966.

### 4. Visit a Ghost Town

With 28 ghost towns within a 50-mile radius of St. George, the most popular remains the town of Grafton. The town of 250 was soon

deserted after frequent Indian attacks and flooding forced residents to better land. Travel over a truss bridge to Grafton's old cemetery that gives telling insights into just what the early pioneers may have endured; many of the headstones read "killed by Indians." While in Grafton, picture yourself where Robert Redford may have stood in the classic film "Butch Cassidy and the Sundance Kid."

### 5. Take a Tour Back Through Time

Visit any one of southern Utah's early settler museums. Nestled near downtown St. George, the Daughters of Utah Pioneers brings an extraordinary collection of artifacts from those who tamed the west. If you want to fit in with the locals, learn how to pronounce the nearby town of "Hurricane" by visiting their Heritage Park Museum.

### 6. Explore the Silver Trail

At its peak, the small mining town of Silver Reef had almost 2,000 residents, complete with grocery stores, restaurants, saloons, and church. Although silver hasn't been extracted in over 100 years, visit some of the few places where silver was discovered, the Old Silver Reef-Wells Fargo Office and Rice Bank Building.

### 7. Climb Every Mountain

With an elevation of 6,500 feet, escape the desert heat with a short drive to Pine Valley Mountain. While there, enjoy the area's famous landmark the Pine Valley Chapel, designed in 1868 by shipbuilder Ebenezer Bryce. It was built as the hull of a ship, upside down using wooden beams bound together with pegs. Also enjoy the rustle of

the wind through the trees on one of Pine Valley's 200 miles of trails.

### 8. Cream of the Crop

The small hometown community of Santa Clara boasts the popular Frei's Fruit Market. Full of vine ripened fruits and vegetables; the locally grown produce stand welcomes visitors as part of the town's new historic district. Tall sycamores line the main street that shade humble pioneer structures and landmarks, and citizens remember their ancestors with the annual Swiss Days Celebration held every September. Don't forget to visit the Jacob Hamblin Home and Museum, constructed in 1862 with local red sandstone.

### 9. Rock Out

If you can't get enough of St. George's panoramic beauty, see it from above. North of the city in Pioneer Park lies the famous DIXIE rock, where you can take that perfect picture that overlooks the city, or rock out below in the Bloomington Caves. See how the ancient peoples used rock at the Ivins Petroglyphs with 997 distinct drawings on a 300 foot cliff.

### 10. Are You From Dixie?

With 27 historical sites on map, the walking tour of St. George begins at the Old Washington County Courthouse that was built 120 years ago. The Old Pioneer Courthouse now houses the St. George Area Chamber of Commerce and consists of a visitor information room. Make your way down Main Street to the Town Square, where you'll find a desert oasis with a fountain and water walk.

## HOTELS

The following hotels have agreed to block rooms out for the annual WEAU Conference. Most of the hotels will honor the rate until 30 days prior to the convention (March 17th). When you call, tell them you are with the Water Environment Association of Utah (WEAU).

### Best Western Abbey Inn

1129 South Bluff Street  
1-435-652-1234  
bwabbeyinn.com  
\$75.00 Single      \$85.00 Double

### Clarion Suites

1239 South Main  
1-800-245-8602  
clarionhotel.com  
\$70.00 Single or Double

### Country Inn and Suites

974 N 2720 E  
1-435-251-9600  
countryinn.com  
\$89.00 Single or Double

### Crystal Inn

1575 South Hilton Drive  
1-435-688-7577  
crystalinnstgeorge.com  
\$70.00 Single or Double

### Fairfield by Marriott

1660 S, Convention Center Dr.  
1-435-673-6066  
marriott.com/hotels/travel/sgufi-fairfield-inn-st-george  
\$109.00 Single      \$129.00 Double

### Hampton Inn

53 N. River Road  
1-435-652-1200  
hamptoninn.net  
\$109 Single or Double

### Hilton Garden Inn

1731 S. Convention Center Dr.  
1-435-634-4100  
hiltongardeninn.hilton.com/StGeorge  
\$104.00 Single      \$114.00 Double

### Holiday Inn Express

2450 North Town Center Drive  
Washington, UT  
1-435-986-1313  
hiexpress.com  
\$109.00 Single or Double

### Howard Johnson Inn and Suites

1040 South Main Street  
1-435-628-8000  
Hojo.com/St.GeorgeUT  
\$54.00 Single      \$59.00 Double

### La Quinta Inn and Suites

91 East 2680 South  
1-435-674-2664  
lq.com  
\$75.00 Single or Double


### Red Mountain Resort and Spa

1275 E. Red Mountain Circle  
1-877-246-4453  
reservations@redmtn.com  
\$300.00 Double or Single

### Ramada Inn

1440 East St. George Blvd.  
1-435-628-2828  
1-800-713-9435  
ramadainn.net  
\$75.00 Double or Single




Rates do NOT include taxes. If applicable please remember to take your tax exempt form and present it at CHECK-IN. Each property varies just a little in amenities offered. Of course there are other hotels in St. George that may offer equal or better rates if you desire to shop around.



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**Collections Quiz**

*Quiz submitted by Lonn Rasmussen  
Cottonwood Improvement District*

1. What is the detention time of a tank if the flow is 3 cfm and the wet well is 5' wide by 5' wide by 6' deep?  
**a)** 25 min           **b)** 35 min.  
**c)** 50 min.           **d)** 60 min

2. What is the flow rate of a full 15 in pipe flowing at 3 ft/sec?

- a)** 2.4 cfs           **b)** 1.7 cfs  
**c)** 3.7 cfs           **d)** 2.9 cfs

3. What is the gallons/capita/day if the town uses an average of 676,890 gallons per day and population is 7,521?

- a)** 75               **b)** 80  
**c)** 85               **d)** 90

4. What motor horsepower is required if the flow in One Dog Utah is 750 gpm the head is 125', the pump efficiency is 85% and the motor efficiency is 90%?

- a)** 45 hp           **b)** 35 hp  
**c)** 25 hp           **d)** 30 hp

5. You need set up a surcharge account for new restaurant, the BOD is 750 mg/l and the flow is 2,550 gallons per day. The cost to treat a pound of BOD is \$.13 what will the monthly surcharge be for a 30 day month?

- a)** \$15.95           **b)** \$1.59  
**c)** \$1.63           **d)** \$16.30

6. A sewer line is to rise 1.2' over 250', what % of slope is the sewer to be laid on?

- a)** .0048%           **b)** .048%  
**c)** .48%           **d)** .00048%

What is the velocity of wastewater if the flow is 1,345 gpm flowing in a 10" pipe?

- a)** 10.1 ft/sec           **b)** 7.5 ft/sec  
**c)** 2.55 ft/sec           **d)** 5.5 ft/sec

How many gallons will 400' of 8" pipe hold?

- a)** 1,420           **b)** 420  
**c)** 139           **d)** 1,042

How many gallons will a 25' deep and 10' by 10' wide wet well hold?

- a)** 10,700           **b)** 2,500  
**c)** 18,700           **d)** 20,850

10. What is the wire to water efficiency of a motor that has 10 water horsepower and a power input of 8.5 kW?

- a)** 85%           **b)** 63%  
**c)** 91.6%           **d)** 55.8%

Answers:

1. C, 2. A, 3. D, 4. B, 5. A, 6. C, 7. D, 8. D, 9. C, 10. B

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# USING THE RIGHT TOOL

Most entities that own or manage sewer collection systems know and have access to the proper tools to find and diagnose sewer line problems. The most common and reliable way to see what is going on is with a closed circuit television camera. Although they are quite expensive it is the best way to see the inside of an active sewer line. I cannot think of a single entity that uses a pavement roller. However, that is exactly the tool that was used to get a better look at the condition of a sewer line in Orem this past summer.

My name is Lawrence Burton and I manage the Water Reclamation Section for the City of Orem. One peaceful day this past summer, I received a phone call from

a project manager telling me there was a problem with a sewer line at a specific place in the system. I jumped in my pickup and drove to the location. When I arrived, a large crowd of people had gathered. This group included the Orem City Public Safety folks with an ambulance, a fire truck, and several police cars. I was astonished at what I saw. Right in the middle of the road was a large hole. In the center of the hole the only thing visible was the front end of a pavement roller and it was pointed straight up. Yes, straight up as in, 'pointed toward the sky.'

I could not believe what I was looking at. Apparently the roller had been compacting fresh asphalt and all of a

sudden the road beneath it started to sink. The operator, feeling a little uncomfortable with the situation, had abandoned ship and was standing on the sidewalk wondering what had happened, along with everyone else.

As I got closer to the sink hole, I could hear water running. It sounded like a small river running down through a rocky stream bed. When I got close enough to see what had happened I realized that the water I could hear running was sewage running through broken concrete from the eighteen inch sewer line that had collapsed under the pavement roller. All of the sandy material that had supported the street surface prior to the collapse had

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washed down the sewer line and was now accumulating downstream in a section of the line that was laid at less grade and was quickly creating another problem. All of the sand from the sink hole was blocking a twenty four inch sewer line and in very short order we had raw sewage boiling out of the next manhole downstream from the collapse and it was not being contained!

As all of you should know the new SSO rule does not take occurrences such as this lightly. Heaven forbid if any raw sewage should escape the closed sewer system and get out where it can actually be seen or worse, out where it may be touched!

Anyway, everyone in my section went into emergency response mode. Pumps were quickly brought in. Bypassing was set up. A contractor was called in and work commenced to replace the line. A call was made to DWQ. The pavement roller had to be lifted from the crater with a large crane. Orem City was on the five o'clock news. All in all there was a huge bill to pay. There was mitigation discussions with local authorities as to the extent of damage done and how to clean up the sewer spill.

When the work was done and the line was back in service it was time to look back

at what had happened and try to see if it had only been a sickening catastrophe or if it was something that we could actually learn from. I think it was a little of both.

We looked at what had caused the sink hole in the first place. Was it using the wrong tool to diagnose sewer line problems or was it something else? Pavement rollers were never intended to be diagnostic tools but it sure brought the problem of hydrogen sulfide in sewer lines to light. We knew there was a problem in this area and had full intention of doing a line rehabilitation project in the near future. We just ended up doing it a little sooner than planned.

We learned that having the right equipment such as pumps and hose and all other associated equipment on hand, so that we could quickly respond and set up a bypass operation, was well worth the money spent. We also learned that

when we get in a bind we can count on an abundance of help from other departments in the Orem City Public Works. Within a very short time of the sinking of the pavement roller other section managers contacted me and offered help in any way we needed.

The single thing that I personally learned was the high quality of people that work for Orem City. From the very beginning of the episode to when it was completely corrected and all work done, every person involved, whether in the water reclamation section or from the entire city work force, worked hard without complaint. They all knew the work had to be done and done as quickly as possible.

I won't say I look forward to the next time something like this happens but I can say that if it does we can count on support and hard work from a great group of people. [bn](#)

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# Tiffini Adams

If you have ever gone to a WEAU event and been greeted by a smiling, friendly, strawberry-blond woman, chances are you have met Tiffini Adams. Tiff, as she is called by all who know her, is the Quality Assurance Officer for both the Central Valley and South Valley Water Labs. She ensures that the analyses are performed correctly and the data are of extremely high quality. Tiff graduated with her Bachelor's degree in Environmental Science from UC – Riverside in a year not divulged. She started her professional career working in environmental labs in California and then later in Utah when she and her husband moved here for his schooling. After working for six years at Timpview Analytical running wastewater and tar analysis (a very sticky business), Tiff moved into the field of laboratory auditing. She worked for the Utah Bureau of Laboratory Improvement until she was snagged by Central Valley and South



Valley in 2003. She has been there ever since keeping both labs on their toes. Tiff has been active in WEAU for many years. Always willing to help, she has been a member of both the Laboratory and the Young Professionals committees, and served as YP chairman for two years. Tiff has given several presentations for WEAU and acts as a moderator at most conferences. This past year, Tiff competed

in the Operations Challenge for Central Valley and helped the team take First Place overall at the WEAU conference and Third Place overall at Nationals. She may have had an unfair advantage, though, having served as a Lab Event judge for the previous five years at WEAU. Tiff is married to Carl Adams, who works for DWQ, and they have two beautiful, talented children, Wiley and Pamela. Her life revolves around her family, her friends, and her animals (two dogs – Jack and Sally and a cat). She loves all things Twilight (she's gone to opening night of every movie and even made a pilgrimage to Forks, WA), the 80's, and pigs (check out her office next time you're at Central Valley). Ever the peacemaker, Tiff has boundless energy and looks for the good in every person she meets. If you have not had the opportunity to meet this little ray of sunshine, look for her at this year's WEAU conference – she will be judging the Lab Event. [en](#)

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# WEF/ABC Practice Exam Questions: Laboratory - Acidity/Alkalinity/pH

Quiz submitted by Tiffini Adams Central Valley/South Valley Labs

**1. Neutral pH at 25 °C is 7.0. Neutral pH of a sample at 0 °C**

- a) Increases
- b) Decreases
- c) Stays the same
- d) Fluctuates

**2. The most common cause of pH electrode fouling is coating with**

- a) Gritty material
- b) Volatile solids
- c) Oily Material and/or precipitated solids
- d) Dissolved Solids

**3. What is the effect of anaerobic conditions on the pH of wastewater?**

- a) Buffers the pH
- b) Raises the pH
- c) Lowers the pH
- d) Has no effect

**4. The endpoint for Acidity may be determined by titrating to a**

- a) Potentiometric endpoint of 5.5
- b) Phenolphthalein indicator endpoint of 8.3
- c) Metacresol purple indicator endpoint of 4.2
- d) pH of 7.0

Comment: Acidity titrates with Base and raise the pH; Alkalinity titrates with Acid and takes the pH down.

**5. What three principle forms of Alkalinity are present in many waters?**

- a) Carbonate, Phenolphthalein, and Hydroxide
- b) Carbonate, Hydroxide, and Bicarbonate
- c) Carbon Dioxide, Hydroxide, and Bicarbonate
- d) Carbon Dioxide, Carbonate, and Phenol

**6. Which of the following has the strongest effect on pH measurement?**

- a) Turbidity
- b) Colloidal Suspensions
- c) Oxidants
- d) Temperature

**7. Which parameter is responsible for change the slope of a pH meter calibration?**

- a) Conductivity
- b) Resistivity
- c) Temperature
- d) Salinity

**8. The pH endpoint for a Total Alkalinity test is**

- a) 4.5
- b) 5.5
- c) 7.0
- d) 9.0

**Answers:**

- 1-A; 2-C; 3-C; 4-B; 5-B;  
6-D; 7-C; 8-A

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# Changes

By Gary Hill



**C**hanges are in the air, spring is here officially, as it has not been that cold of a winter, more spring-like at times. The flowers are coming up and busting out on the trees. Time to get serious about some outdoor time, the garden and of course the garage. Sweep it out and let the warmth in,

plan my next moves to get the old Pontiac finished. I can already smell the paint in the air. My time of year...

You know, I have seen a lot of changes in the 20 years I have been in wastewater. Even with all the new technology, certain things still remain constant. We have added SCADA systems, paperless record keeping, PLCs and variable speed drives, sensors and automated alarms, flow paced tracking, and on and on. Yet under all it all, the basics of a wastewater plant still remain the same. We need to remove rags and debris along with grit to protect our downstream processes, hence the headworks. We need a home for all the biological guys and gals who do the bulk of the work to clean the water, which includes the addition of air, food and a suitable place to perform their labors. We also need a way to separate the cleaned water from the solids and get our workers back on the job, and a way to control the population of our crew when the work slows down due to lack of food, toxics, or other factors so we can maintain an

optimum work environment. We need to disinfect the cleaned water as it goes out the back door to protect our downstream users, and possible further polishing for a more refined product. On the solids end, we need to be able to remove the water bound in the solids to create a usable product, as in biosolids. The flow streams may be different from one plant to another, but essentially, the basics remain the same. What I initially learned 20 years ago still apply. I call it Wastewater 101...Learn the basics, they still apply!

This last year as the PWO representative, I have got to know quite a few of you in the industry here in Utah. I have enjoyed meeting and working with many of you, as we have worked together to put on trainings, seminars, the Op. challenge, golf, and many other events. I want to thank all those who have supported me, and the vision I had for the operators, along with some of the changes that were implemented to help the future PWO reps. My thanks

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“I pass the driving gloves to Ron Clements, who will be our new PWO representative. I know the operators are in good hands.”

to all the managers, lab people, operators, professionals, vendors, and all others who have stepped up to make happen what needed to be done. A big thank you to the Operator Challenge Committee headed by Marlo Davis, and for all the work they have done for the Challenge. A special thanks to Chris and Ron for working beside me, you guys have been awesome...

With the change of seasons comes a change in who takes hold of the wheel of the PWO muscle car, so to speak. I pass the driving gloves to Ron Clements, who will be our new PWO representative. I have known Ron a long time, and I know the operators are in good hands. I am sure he will not let me get too far away, so I will still be in background to help out.

Before I put my gloves on, and pick my die grinder back up to finish cutting out the trunk floor rot, we will be having eight Challenge Teams competing in St. George. We are excited to have two new players on the scene, one from Provo City, and one from Magna Water. We welcome them along with the many new and veteran operators returning to compete. A good time sure to had by all. Paul Krauth will be handling the Operator track this round, reprising his acclaimed certification training to prepare those who are taking the certification tests. By the way, Paul will also be the new WEAU president, and the ‘Reign of Terror’ begins...expect changes.

Ok, enough rambling, need to finish this cut and it is time for a dry fit...I hope it will be a great year for all of us and may we all enjoy it! One day at a time...

From my ol’ garage  
Gary 

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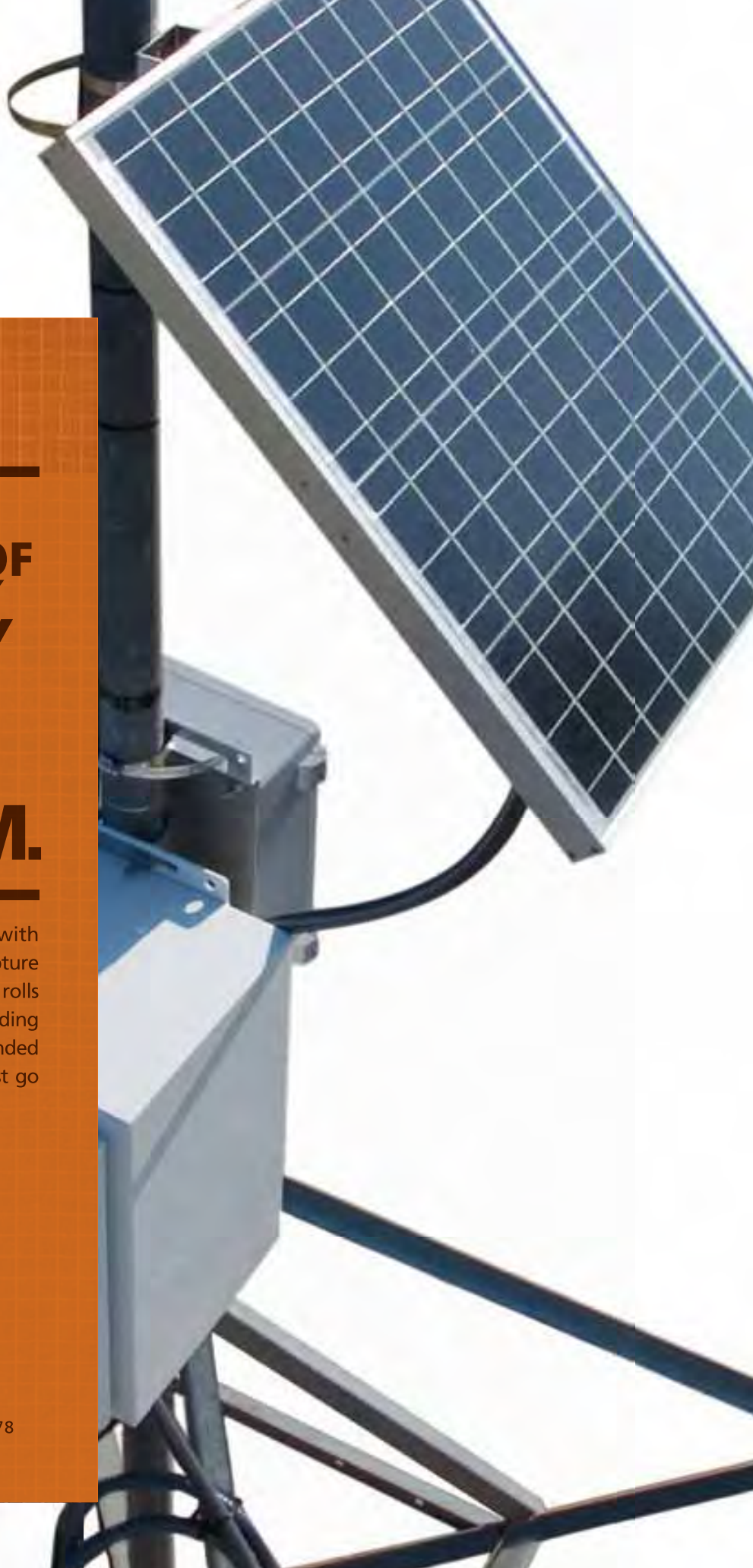
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