



## **Topic: Permeable Reactive Barriers: Proper Characterization, Design, and Implementation**

**Speaker: Mike Mazzerese, Senior Remediation Engineer, AST Environmental**

**Time: Tuesday, August 13, 11:30am-1pm**

*CEMS has received (1) CLE for this presentation*

A common solution to limit petroleum hydrocarbon or chlorinated solvent contaminant migration across a site feature (property boundary, stream, etc.) is to install a permeable reactive barrier (PRB) perpendicular to groundwater flow. As the contaminated groundwater flows through the PRB and contacts the remedial amendment, the groundwater concentrations and mass flux are reduced. This presentation will cover PRB characterization, design, and installation of activated carbon based injectate chemistries. Specifically, injection and trenching applications will be discussed. Several project summaries will also be presented.

Mike Mazzaresse is a Senior Remediation Engineer at AST Environmental and has been involved with in-situ remediation for 19 years. His responsibilities include project management, research and development, remedial assessment and design, field implementation oversight, and post project data analysis. Mike is a graduate of Penn State University holding BS and MS degrees in Environmental Engineering.

For complete topic information, a full biography, and reservations, please follow this link: [CEMS August Luncheon](#)

**LOCATION:** The EPA Conference Center located on the 2nd floor of the EPA Region 8 Headquarters building at 1595 Wynkoop St. When entering the building, visitors will be asked by the building security guards to display valid photo identification, pass through airport type security machines, sign in at the lower front desk, and wear a temporary EPA visitor badge. Then please proceed to the second floor to register with the CEMS representative.

**MEETING FORMAT:** Members may either bring their own lunch and attend the meeting for no charge, or they may request that CEMS order a box lunch for them. The cost of the box lunch for members is \$16.00; for non-members, \$19.00.

**RESERVATIONS: PLEASE** give your name, company name and phone number via email to [admin@coems.org](mailto:admin@coems.org). **PLEASE INDICATE IF YOU ARE RESERVING A BOX LUNCH OR BRINGING YOUR OWN.** Reservations must be received BEFORE Friday, August 9, 2019 at 5:00PM. No reservations will be taken after this date! Payment of \$16.00 for members, \$19.00 for non-members will be accepted at the door with prior reservation. Please cancel your reservation by Friday, August 9, 2019 if you are unable to attend. It is the policy of the Society to bill for meals reserved but unclaimed. You may also pay with credit card via PAYPAL by following this link: [CEMS August Luncheon](#)

**NOTICE:** CEMS would like to thank EPA for the use of meeting space and would like to emphasize that the use of EPA space does not constitute endorsement of CEMS, sponsors of CEMS functions, or the content of CEMS workshops or meetings.

## *From the Board... Make a Playdate with CEMS by Noreen Okubo, CEMS Treasurer*

Last month at a Bear Creek Junior Baseball game for 7-year olds, a fight over the 13-year old umpire's call started a fist fight on the field which was nationally televised. Ten men and two women ranging in age from 55 to 24 were issued disorderly conduct citations. Bear Creek recreation district dissolved both teams. Jason Gay, father of a 6-year old baseball player and WSJ sports columnist noted baseball is a failure based sport where the league's best hitters fail 70% of the time. I assumed people voluntarily played games and there was supposed to be fun. My definition of play was too narrow until I reread Dr. Stuart Brown's (SB) book "Play."

SB defines play as a state of mind, an absorbing, apparently purposeless action that provides enjoyment and a suspension of self-consciousness and sense of time. It is also self-motivating and makes you want to do it again. Humans have to put themselves in the proper emotional state in order to play, although an activity can also induce the emotional state of play.

We are a mixture of eight types of play personalities:

1. The Joker
2. The Kinesthete (Movers, dancers, runners, cyclists, team sports...)
3. The Competitor (Money may keep score)
4. The Director (born organizers)
5. The Explorer (going to new places, mental or physical)
6. The Collectors (objects or experiences)
7. The Artist/Creator (making things)
8. The Storyteller

Humans learn to play starting before birth. Play development.

3-4 months: Smile-eye contact, attunement to parent.

3-9 months: Learning to move, sculpts the brain.

15 months: Object play, starts with spoons, food, teething rings, evolves to play with hands, ball playing...

Age 2: Imaginative Play. Move between imaginary and real worlds.

Age 2 on Social Play starts with peek-a-boo. Types of Social Play.

4-6 years old: Friendship and Belonging, parallel play, give and take, contagious enthusiasm.

*(Continued on page 7)*

### **2019 CEMS Officers:**

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### Presentation Opportunities for Upcoming CEMS Meetings

The CEMS Program Committee is currently searching for "interesting, topical and informative" presentations for our meetings in 2019 and beyond. This is a great opportunity to network with your peers, share information and technology, and become more involved with the environmental community. CEMS is interested in an assortment and variety of topics relevant to environmental and natural resources professionals. Each monthly presentation is roughly 50 minutes, followed by a question and answer period.

**If you or someone you know is interested in presenting at our monthly meetings, or our annual conference, please feel free to contact our Programs Committee, Andy Horn at [Andy@WestwaterHydro.com](mailto:Andy@WestwaterHydro.com) or Steve Truesdale at [struesdale@ninyoandmoore.com](mailto:struesdale@ninyoandmoore.com).**

Comments or suggestions from previous meetings, including the Annual Fall Conference, are also welcome. Let us know if we can publish them in the newsletter or website.



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5 REASONS TO ATTEND



1

More Networking



2

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3

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4

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5

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COLORADO  
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**CEMS REGULATORY UPDATE**  
**FEDERAL AND STATE ACTIONS IMPACTING COLORADO**

**By Amanda L. Hemmerich**  
**Burns, Figa & Will, P.C.**  
**July 2019**

On June 10, 2019 the Environmental Protection Agency (EPA) published a final rule adopting a new statutory interpretation and establishing new regulatory changes to allow gasoline blended with up to 15 percent ethanol to take advantage of the 1 pound per square inch Rapid Vapor Pressure (RVP) waiver. The final rule changes the volatility requirements for E15 during the summer season (May 1-September 15). The modification to the volatility provisions will allow E15 to benefit from the 1-psi waiver, which allows gasoline-ethanol blends to have a higher RVP than normally allowed under the Clean Air Act. In order to accomplish these changes, the EPA has found that E15 is “substantially similar” to Tier 3 E10 fuel and will remove the limitations on the volatility of E15 and modify the associated product transfer document (PTD) requirements. As a result of this final rule, people will be permitted to make, distribute and sell E15, made with the same conventional blendstock for oxygenate blending used to make E10, during the summer. Amendatory instructions 4-10 in this final [rule](#) are effective July 10, 2019 and amendatory instruction 1-3 and 11-12 were effective June 5, 2019.

On June 19, 2019 EPA issued the final Affordable Clean Energy rule. With this notice, the EPA is finalizing three separate and distinct rulemakings. First, the EPA is repealing the Clean Power Plan (CPP) because the Agency has determined that the CPP exceeded the EPA’s statutory authority under the Clean Air Act (CAA). Second, the EPA is finalizing the Affordable Clean Energy rule (ACE), consisting of Emission Guidelines for Greenhouse Gas (GHG) Emissions from Existing Electric Utility Generating Units under CAA section 111(d), that will inform states on the development, submittal, and implementation of state plans to establish performance standards for GHG emissions from certain fossil fuel-fired EGUs. In ACE, the Agency is finalizing its determination that heat rate improvement (HRI) is the best system of emission reduction (BSER) for reducing GHG—specifically carbon dioxide (CO<sub>2</sub>)—emissions from existing coal-fired EGUs. Third, the EPA is finalizing new regulations for the EPA and state implementation of ACE and any future emission guidelines issued under CAA section 111(d). The final [ACE rule](#) becomes effective September 6, 2019.

The EPA is amending the release notification regulations under the Emergency Planning and Community Right-to-Know Act (EPCRA) to add the reporting exemption for air emissions from animal waste at farms provided in section 103(e) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). In addition, EPA is adding definitions of “animal waste” and “farm” to the EPCRA regulations to delineate the scope of this reporting exemption. This amendment maintains consistency between the emergency release notification requirements of EPCRA and CERCLA in accordance with the statutory text, framework and legislative history of EPCRA, and is consistent with the Agency’s prior regulatory actions. This final [rule](#) is effective July 15, 2019.

On July 2, 2019, five conservation groups sued the Trump administration and asked a federal court judge to block approval of Arch Coal’s West Elk mine expansion. The [lawsuit](#) and motion for a preliminary injunction, filed in U.S. District Court in Denver, says the Interior Department violated federal law. The suit targets the failure of the Department to take action to reduce or offset methane pollution associated with coal mining at the expanded West Elk Mine. It also challenges the Department’s failure to fully consider the climate implications of authorizing more coal mining and to address the impacts of more mining to the region’s water resources and fish.

## MEMBERSHIP – RENEWALS AND NEW MEMBERS

A big thank you to all those members who renewed, and welcome to our newest members.

### Renew – Individual

Ben Costello, Nationwide Environmental Services Inc.  
 Bill Dotterrer, Nationwide Environmental Services Inc.  
 Timothy Gablehouse, Gablehouse Granberg, LLC  
 Chad Howell, City of Thornton  
 John Jankousky, EME Solutions, Inc.  
 Brian LaFlamme, Nationwide Environmental Services Inc.  
 John Rohde, ApexCompanies, LLC  
 David Slawkawski, Ayuda Companies

### New – Individual

Gretchen Kohler, Antero Resources

### Renew – Corporate

#### CTL|Thompson, Inc.

Rich Blessing	John Castellano	Brandon Edwards	Pat Foley	Dana Harris
Steven Mackenzie	Trevor Truett	Lela Updegrave	Matthew Wardlow	Ted White
Rannen Worsley				

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Jackie Rowley	Gabriel Sabadell	Poppy Staub	Emily Stockwell	Scott Struck
Helen Thomas	Anne Woodland			

#### Vista Geoscience

Matthew Berkes	Chase Douglas	John V. Fontana	Jon Meier	Eric Saathoff
Cheryl Shelite	Ted Stockwell	Luke Tetreau	Jill Vardon	Peter Wethington
Jeffrey Zajdel				

## **RECRUIT AND PROFIT!!**

Recruit a **NEW** member for CEMS and get a **box lunch** credit voucher! For each person you persuade to join CEMS, you will be issued a **box lunch** voucher that you can apply to the CEMS fee of your choice, whether it be a luncheon, workshop or your own membership renewal. Note that you cannot take credit for a member's renewal. However, there is **NO LIMIT** to the number of vouchers you can accumulate. Just have the new member put your name on the referral portion of the Membership Application Form. And keep those new members coming!

## *From the Board* (continued from page 2)

Rough and Tumble Play: Friendly play fighting. Physical touching.

Celebration and Ritual play: Birthdays, weddings, under social control.

Storytelling and Narrative Play: Gathering disparate information into a unified context.

Transformative-Integrative Creative Play: Using playfulness to innovate and create, Art Music, Dance Literature Science...

Play stimulates neural growth our entire lifetime. A small part of Alzheimer's risk is genetic. One study showed that for people who had the most cognitive activity the chances of getting Alzheimer's disease were 63 % lower than the general population. When we stop playing, we stop developing, and when that happens the laws of entropy take over—things fall apart. When we stop playing, we start dying.

Play is creativity's partner. Companies often talk about promoting creativity and innovation, but they kill their own best ideas, drive off or shackle the people who come up with them. New ideas in companies threaten the existing hierarchy. They activate the company's "autoimmune system" which protects the existing structure. On a personal level, your creativity needs to be protected, not only from outside critics, but also from yourself. Allow yourself to be abundant in your creativity, at first making judgements about what you think, feel or do. Simply play with your ideas, with how you do things. One scientist told SB the secret to his brilliant ideas is that he has a really big wastebasket. He let himself enjoy thinking up and throwing out one hundred bad ideas before finding the single good one. Charlie Munger, Warren Buttet's 95-year old partner, in a May WSJ interview, explained one reason, I've been a little more successful than most people is I'm good at destroying my own best-loved ideas. I knew early in life that would be a useful knack and I've honed it all these years, so I'm pleased when I can destroy an idea that I've worked very hard on over a long period of time. And most people aren't. Most people hate that. Actually, I know how much power and wealth is in it, so I like it. Plus, that's enlightenment. Power, wealth and enlightenment. Not a bad combination.

SB asks if play is so necessary to work, why do we lose it? As we get serious about career, get married, have a family, move up the ladder at work, take care of parents, take part in community and religious duties, and work out to stay in shape and prevent health problems, we are pulled away from any time for personal play. If anyone goes without play for too long, grinding out the work that is expected of them, they will at some point look at their lives and ask "Is this all there is?" The acquisition of good grades, material wealth if not connected to the heart of life, is dispiriting. For some people this happens at 16, others at 60. For consummate players, it does not happen. We shame ourselves into giving up play. SB has experienced too many cold and hostile reactions to play when people listen to a full rendition of its nature and importance, and they slowly realize that they have lived a life deprived of spontaneous play. They are struck by the fact that what love they've had was conditional and based on their performance. To fully realize this in one sitting as an adult can be overwhelming. The reaction is often an intense (but unconscious) defensiveness, a denial that the fullness of one's life has been wasted. The resulting emotion is usually anger at the deliverer of the message. Joy is our birthright, and is intrinsic to our essential design. For highly competitive, serious people to realize that they have missed this joy can be devastating. Perhaps, this fact lies behind the culturally supported idea that people who play are superficial, are not living in the real world, are dilettantes or amoral slackers. The opposite of play is not work, it's depression.

The Dark Side of Play. A "Player" in the dating context, is someone who is entertaining themselves in a narcissistic, strictly manipulative play. There is not sense of attunement with the other. Narcissistic lovers are intensely entitled, goal driven, with orgasm, entrapment, guaranteed lifelong dependency, or domination as the goal. Other objects of desire—cars, planes, yachts, islands, mansions...can add to the narcissistic thrill, but there is no emotional opening or true connection. That's why Players are dangerous. They invite emotional openness without reciprocating. Bullying is not playing. A prime characteristic of play is a desire to keep the activity going. Animals, polar bear and Husky, cat and owl, dog and cat (natural predators) self-handicap in order to level the playing field to keep the game going.

(Continued on page 9)



**2019 FALL CONFERENCE**  
**Wednesday, October 15, 2019**  
**Broncos Stadium at Mile High**

**Economic Growth and Sustainability – Finding the balance between population growth and environmental stewardship.**



*Overview:* According to recent census data, Colorado is the second fastest growing state in the nation with several front range cities ranked in the top 100 of fastest growing US cities. This conference will explore past, present, and future threats to Colorado's environment and challenges associated with population growth. Presentations will focus on minimizing the environmental impacts of land development and use and natural resource extraction, and maximizing our enjoyment of what many of us consider to be the happiest place on earth.

### **CEMS Meeting Sponsorships**

Sponsors for a CEMS lunch meeting are provided a table where brochures or other materials can be displayed. The cost to sponsor a CEMS meeting is \$30 for members and \$85 for non-members. The non-member rate includes a one-year CEMS individual membership. Please send your request to sponsor a lunch meeting to [admin@coems.org](mailto:admin@coems.org).

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<http://www.coems.org/jobs>

If you or your company would like to post to our website, please just send over the job description, with contact information to [admin@coems.org](mailto:admin@coems.org).

We also will post resumes for our members to help you find new opportunities.

## *From the Board* (continued from page 7)

Everyone has played with someone who takes the game too seriously, who can't stand to lose and is in a foul mood long after being beaten. Poor sports are no fun. They ruin the game. It's not enjoyable to win against spoilsports. Poor sports are often narcissistically preoccupied, rather than caught up in the shared emotion and loss of self that team sports, at their best provide. They aren't playing at all. A cyclist says "I think winning races has to be a joyful thing. It has to be a hobby and not a profession.

A gaming addiction doesn't represent a "dark side" to play any more than obesity represents a dark side to food. On the whole, 3D physical and social play is a better form of play just as a balanced diet than one full of sugar hits.

It took a personal life crisis for SB to wake up to what I had known intellectually was the importance of regular authentic play in life. By being driven to work and "play" feverishly over committed to profession, family and physical conditioning, he had lost the life-enhancing rewards true play provides. SB's overall life was pressured, work-oriented and consistently requiring more than I could accomplish without losing sleep or shortchanging private needs for personal play. Looking back, what he could have done differently is to incorporate play earlier and more consistently in professional life and set clear boundaries about working too hard. Play does not need to be artificially separated from work.

SB lists seven ideas to prompt incorporation of play into life. The fourth idea is "Fun is your North Star, but you don't always have to head north. When looking for play that really works for you, the easiest way to find what works is to experience that's fun. My sister noted yesterday that there must be something about CEMS that I enjoy since I'm still writing articles and being secretary, since I retired. As a kid my favored forms of play were organizer, and explorer (reading). I organized the imaginary activities for my siblings and neighbors. We played, fish hatchery, library, fire station, safari, tea party, stage dance performances, school. My daughter reminds me that she could often find me standing in the middle of a room reading. SB 76 years old, still rides a bike up a Robinson Canyon to experience the glide home, clear, happy and at one with body, nature and spirit. He has had similar moments emotionally when poking through neuroscience literature finding an "aha" such as the realization that REM sleep and play share similar brain stem evolutionary patterns. SB's ride up Robinson Canyon, through physical, and the glow while reading, though sedentary, are for him close to identical "states" of play-being. CEMS activities fit the definition of play, they are voluntary, the players want to the activities to continue, include different play domains (movie, conference, programs and golf tournament) to interact.

Acknowledgement: Play: How it Shapes the Brain, Opens the Imagination, and Invigorates the Soul by Stuart Brown MD.

*Noreen Okubo is the CEMS secretary, a retired chemical engineer who worked as an environmental regulator for CDPHE, DOE and EPA.*