Iowa DNR Well Contractor CEU Index

Event Home Page
Find out how to attend
NGWA Home Page

Search
Browse
Alphabetical Listing of Sessions
Speaker Index
Exhibitor Index

Note – You can click on the session titles below to see the abstracts/speakers within each session.

Monday, December 3, 2018

8:30 A.M.-9:50 A.M.

Las Vegas Convention Center Room N110-114
Groundwater Summit Opening and H2O Presentation
Alan Kolok, Ph.D.

This session qualifies for up to 1.5 Iowa DNR Contact Hour.

10:20 A.M.-1:40 P.M.

Las Vegas Convention Center Room N109
Groundwater Monitoring

10:20 a.m. The MODFLOW 6 Modular Hydrologic Model Christian D. Langevin, Ph.D.
10:40 a.m. Methodology and Framework for Developing Groundwater FEFLOW Conceptual and Numerical Model to Couple with Mike 21 FM: Miami Beach Case Study Carlos Tamayo
11:00 a.m. Study of Scale and Time Dependent Parameters for Reactive Solute Transport through Stratified Porous Media Abhimanyu Sharma
11:20 a.m. Using Periodic Pumping to Characterize Aquifers: Field and Modeling Advantages Michael Cardiff, Ph.D.
11:40 a.m. Application of 3D Visualization Modeling to Improve Conceptual Site Model Development and Groundwater Remediation Richard Boone, CPG, CHMM
12:00 p.m. Lunch (on your own)
1:20 p.m. Development of a Revised Hydrogeologic Conceptual Model of the Indian Wells Valley Groundwater Basin Max Halkjaer

This session qualifies for up to 2 Iowa DNR Contact Hour.
Las Vegas Convention Center Room N117

**Groundwater Monitoring**
10:20 a.m. **Cloud-Based Analytics Dashboard Advances Real-Time Data Analysis While Supporting Collaboration and Active Groundwater Management** Charles Dunning, Ph.D.
10:40 a.m. **Stable and Radio Isotope Analysis Identified Sources of Methane During an In-Situ Remedial Action** Richard Coffin
11:00 a.m. **Ion Tracer to Quantify Drill Fluid Impact During Vertical Aquifer Profiling** Ramsey Ferguson, PG
11:20 a.m. Break
11:40 a.m. **Monitoring of Pollutant Movement Along a Line of Transect within the Freshwater Field of Umm Al-Aish, Kuwait** Amitabha Mukhopadhyay
12:00 p.m. Lunch (on your own)
1:20 p.m. **Tagging and Tracking Pumping Influence Provides Critical New Insight Across Monitoring Networks** Joseph Fillingham, Ph.D.
1:40 p.m. **Benefits and Limitations of Using Down Well, Real-time, Telemetric Water Quality Meters to Monitor Water Quality** Brian Symons, PE
2:00 p.m. **The Effect of Close-Proximity Blasting on Groundwater Quality and Impacts on Communal Drinking Water Supply Systems** Andrew Bingeman
2:20 p.m. **Monitoring Optimization: Lean Approaches and Lessons** Jay Piper, CEM
2:40 p.m. **Developing a Threat Assessment and Monitoring Framework for Urban Karst Groundwater Management** Rachel Kaiser

This session qualifies for up to 3.25 Iowa DNR Contact Hours.

Las Vegas Convention Center Room N119-120

**Groundwater Remediation including Combined Remedies Part 1**
Kevin Finneran, Ph.D.
10:40 a.m. **Antimethanogenic Reagents (AMR) to Control Excessive Methanogenesis During Remedial Actions** Jim Mueller
11:00 a.m. **Pilot Study Data Evaluation: Enhanced Attenuation of PFAS and VOCs in Groundwater** Jeffrey Holden, PE, LSP, LEP
11:20 a.m. **Subgrade Biogeochemical Reactors: Design and Performance of Multiple Configurations** Jeff Fitzgibbons, PG
11:40 a.m. **Challenges of Iron in Groundwater Remediation Projects – A Case Study** Jason Downey, PE
12:00 p.m. Lunch Break (on own)
1:20 p.m. **Animal Co-Products as Novel Electron Donors for In Situ Bioremediation** Kevin Finneran, Ph.D.
1:40 p.m. **Iron Enhanced In Situ Reductive Dechlorination in High Sulfate Aquifers** Daniel P. Leigh, PG, CHG
2:00 p.m. **Optimization and Performance of ZVI Amendments for In-Situ Chemical and Biological Reduction** Gary Birk, PE
2:20 p.m. Case Study – Challenges Encountered during Concurrent Implementation of Remedial Strategies at a Solvent Site  Joe Whearty
2:40 p.m. Groundwater Modeling and Monitoring Results for a Combined Thermal and In-Situ Bioremediation Remedy  Jason R. House, CG, PG
3:00 p.m. Combining Technologies and Implementation Methods to Address Chlorinated Solvent Impacts at Complex Sites  Mike Mazzarese
3:20 p.m. Lessons Learned from Surfactant Enhanced Aquifer Remediation of Light and Dense NAPLs  David Alden, PE

This session qualifies for up to 4 Iowa DNR Contact Hours.

10:20 A.M.-11:40 A.M.

Summit
Las Vegas Convention Center Room N107/108

Room N107/108  Groundwater/Surface Water Interactions
10:20 a.m. Next Generation Sequencing for Management of Surface Water/Groundwater Interaction and Water Quality  Andrea Rocha, Ph.D.
10:40 a.m. Surface Water/Groundwater Interaction: A Forensic Approach to Salinity in an Alluvial Aquifer  Erin Noonan
11:00 a.m. A Comparison of Thermal Imaging and In-Situ Thermistor/Tensionmeter Data to Characterize Groundwater Seepage in a Fen  Ogochukwu Ozotta
11:20 a.m. Surface-water Reservoir Effects In A Shallow Karst Aquifer: Quantity, Quality Or Both  Joe C. Yelderman Jr., PhD, PG

This session qualifies for up to 1.5 Iowa DNR Contact Hours.

12:00 P.M.-1:20 P.M.

Workshop
Las Vegas Convention Center Room N115/116

Water Well Design by the Numbers
Marvin F. Glotfelty, RG and David Kill

This session qualifies for up to 1.5 Iowa DNR Contact Hours.

2:00 P.M.-3:40 P.M.

Summit
Las Vegas Convention Center Room N109

Anything Else Groundwater
2:00 p.m. Quantifying Groundwater Evapotranspiration with Remote Sensing for the Humboldt River Basin, NV  Matt Bromley, M.S.
2:20 p.m. A Five-Year Estimation of Wasted Potable Landscape Irrigation Water, Orange Crest-Mission Grove Area (OCMGA), Riverside CA  Thomas Deane, CHg, PG, RG
2:40 p.m. Flow of Groundwater through North Slope, Alaska Gravel Pads  Ori Miller
3:00 p.m. Break
3:20 p.m. Remediation to Research: Training Future Hydrogeologists--A Repurposed Geoprobe to Assess an Alluvial Aquifer  Wayne Hamilton, PE, PG, Research Faculty
This session qualifies for up to 1.5 Iowa DNR Contact Hours.

2:20 P.M.-3:00 P.M.

**Summit**

Las Vegas Convention Center Room N107/108

**Karst Hydrology**

2:20 p.m. *Determination of Hydraulic Diffusivity of a Limestone Aquifer Using Spectral Analysis Techniques* Hillol Guha, Ph.D., P.G., P.E.

2:40 p.m. *Modeling and Evaluating the Influences of Class V Injection Wells on Urban Karst Hydrology* James Shelley

This session qualifies for up to 0.75 Iowa DNR Contact Hour.

3:15 P.M.-4:00 P.M.

Las Vegas Convention Center Room N213/214

**Early/New Career Peer to Peer Networking Session**

This session qualifies for up to 0.75 Iowa DNR Contact Hour.

4:00 P.M.-5:00 P.M.

**Summit**

Las Vegas Convention Center Room N119/120

**Augmented Reality/Mixed Reality Platforms for Remediation**

John Horst, PE, Nick Welty, PG and Allison Yanites

Las Vegas Convention Center Room N109

**Groundwater Data Available to the Public -- USGS and the National Groundwater Monitoring Network**

Rodney Sheets, William L. Cunningham, Charles W. Schalk, Candice Hopkins and Daryll Pope

Las Vegas Convention Center Room N218

**Mitigating Natural Disaster Impacts at Groundwater Remediation Sites - Discussion Session**

Las Vegas Convention Center Room N117

**What’s New in Groundwater Monitoring**

These sessions qualify for up to 1 Iowa DNR Contact Hours.
Click on the session titles below to see the abstracts/speakers within each session.

**Tuesday, December 4, 2018**

---

8:00 A.M.-9:00 A.M.

**Workshop**

Las Vegas Convention Center Room N201/204

*Basic Pump Sizing and Understanding the Pump Curve*

Scott O'Brien

**Workshop**

Las Vegas Convention Center Room N219/222

*Business Efficiency - Are We Really in It for the Money*

David Baker

**Workshop**

Las Vegas Convention Center Room N115/116

*Drilling Reactive Clays And Shales*

Jim Hutmacher

**Workshop**

Las Vegas Convention Center Room N209/212

*Getting Past the "Feel-Good" Part of a Groundwater Project in Third World Country*

Edd Schofield

**Workshop**

Las Vegas Convention Center Room N101/102

*How to Conserve Water Using Innovative Techniques with Traditional Problem Water Treatments*

Matthew Wirth, BA

**Workshop**

Las Vegas Convention Center Room N205/208

*The Emerging Revolution in Groundwater Rights*

Jesse J. Richardson Jr., J.D.

**These sessions qualify for up to 1 Iowa DNR Contact Hours.**

---

8:30 A.M.-9:30 A.M.

**Workshop**

Las Vegas Convention Center Room N110/114

*2018 GSA Hydrogeology Division Birdsall-Dreiss Lecture*

David F. Boutt, Ph.D.

**This session qualifies for up to 1 Iowa DNR Contact Hours.**
9:00 A.M.-10:00 A.M.

**Workshop**
Las Vegas Convention Center Room N201/204
*Advanced Curves, NPSHr, and Sizing Programs*
Daniel Featherstone

**Workshop**
Las Vegas Convention Center Room N101/102
*Don’t Forget to Disinfect...Developing a Strategy for Microbiological Contamination in Private Water Systems.*
Kirk Sheasgreen

**Workshop**
Las Vegas Convention Center Room N205/208
*Groundwater Industry Legislative Update and Current Issues*
Lauren Schapker and Margaret Martens

**Workshop**
Las Vegas Convention Center Room N219/222
*Phase Converters, VFDs and Low Harmonics. Why Should I Care?*
Nicholas Kingsbury, President

**Workshop**
Las Vegas Convention Center Room N115/116
*We Mix Properties...Not Mud!!*
Douglass Keller

These sessions qualify for up to 1 Iowa DNR Contact Hour.

9:30 A.M.-10:40 A.M.

**Plenary Session: PFAS: When the Word Becomes Reality**
David Henrich, CWD/PI, CVCLD, Avram Frankel, PE and Steve Sliver

This session qualifies for up to 1.5 Iowa DNR Contact Hours.

10:30 A.M.-11:30 A.M.

**Workshop**
Las Vegas Convention Center Room N205/208
*How to Become a Groundwater Guardian Green Site*
Jennifer Wemhoff

**Workshop**
Las Vegas Convention Center Room N223/224
*PFAS Call to Action*
Las Vegas Convention Center Room N115/116
Performing Plumbness and Alignment Tests - The Lost, but Essential Art
Roger E. Renner, MGWC, NGWAF

Las Vegas Convention Center Room N101/102
Preventive Maintenance - Extending the Life of Your Water
Kevin McGinnis

Las Vegas Convention Center Room N209/212
Supply Chain Survival in the Age of Amazon
Greg Beach, David Henrich, CWD/PI, CVCLD and Randy Carnes

Las Vegas Convention Center Room N201/204
US Department of Energy Pump Efficiency Standards – What You Need to Know
Peter Gaydon

Las Vegas Convention Center Room N219/222
Using Digital Meters on VFD’s
Tom Stephan

These sessions qualify for up to 1 Iowa DNR Contact Hour.

11:00 A.M.-1:50 P.M.

Las Vegas Convention Center Room N109
Geophysics for Groundwater Model Development and Monitoring
11:00 a.m. Airborne Geophysical Data for Building a Groundwater Sustainability Plan, Bill Brown
11:20 a.m. Geophysical CSAMT Survey Results and Groundwater Modeling in a Groundwater Appropriation Trial, Norman Carlson, PG
11:40 a.m. Hydro-TISAR – A New High Resolution Seismic Imagery Method for Hydrogeological Investigations, Milan Situm
12:00 p.m. Lunch (on your own)
1:30 p.m. Geophysical Surveys to Maximize Horizontal Well Yield and Extend Production in Depleting Aquifers, John Jansen, Ph.D., PG

This session qualifies for up to 1.5 Iowa DNR Contact Hours.
11:00 A.M.-12:00 P.M.

Las Vegas Convention Center Room N107/108
Managed Aquifer Recharge

- 11:00 a.m. ASR Generation: Generating Power During the Injection Cycle of an ASR Project, Kent Madison
- 11:20 a.m. Sustainable Water Initiative For Tomorrow (SWIFT), Managed Aquifer Recharge Demonstration Project, Mark C. Lucas
- 11:40 a.m. Environmental Isotopes in Time Series Resolve Issues of Imported Water Recharge in Basin Fill Aquifer, Barry Hibbs, Ph.D.

This session qualifies for up to 1 Iowa DNR Contact Hour.

11:00 A.M.-2:50 P.M.

Las Vegas Convention Center Room N119/120
Water Quality and Treatment

- 11:00 a.m. Groundwater Quality and Fracking: Current Understanding and Science Needs, Daniel Soeder
- 11:20 a.m. Citizen Suits are Possible Regarding Groundwater Contaminaiton, Steven Hoch, JD
- 11:40 a.m. Using Ultrasound to Minimize Mineral Depositions in Boreholes, Koen Kinsbergen
- 12:00 p.m. Lunch (on your own)
- 1:30 p.m. The Removal of Long & Short Chain Perfluoroalkyl Substances via Granular Activated Carbn Adsorption, Adam Redding
- 1:50 p.m. Groundwater Treatment for the Removal of Arsenic and Uranium, Peter Meyers
- 2:10 p.m. Activated Carbon, A Love Affair Spanning 15 Years, Scott Noland
- 2:30 p.m. New Directions for Improvement of Groundwater Quality, Bruce Manchon, PG

This session qualifies for up to 2 Iowa DNR Contact Hours.

11:30 A.M.-12:30 P.M.

Las Vegas Convention Center Room N223/224
Groundwater Recharge Call to Action

This session qualifies for Iowa DNR Contact Hours – up to 1 contact hour.

12:30 P.M.-1:30 P.M.

Las Vegas Convention Center Room N219/222
Constant Pressure Systems - The Opportunity, the Challenges, the Playbook, Mark Reeder

Las Vegas Convention Center Room N205/208
Inexpensive and Effective Safety Resources Any Company Can Use, Jim Wright
**Workshop**
Las Vegas Convention Center Room N201/204
**Solar for AC Pumps: Solar Pumping is Not Just for DC**
Matt Servant

**Workshop**
Las Vegas Convention Center Room N115/116
**Water Well Rehabilitation and Time Based Preventive Maintenance**
Neil Mansuy

These sessions qualify for up to 1 Iowa DNR Contact Hour.

1:30 P.M.-2:50 P.M.

---

**Summit**
Las Vegas Convention Center Room N107/108
**Sustainability and Planning**
- 1:30 p.m. **Chasing Sustainability: Establishing Management Goals and Thresholds** Leslie Dumas, PE
- 1:50 p.m. **Central Coast Blue: Creating a Sustainable Groundwater Supply and Combating the Threat of Seawater Intrusion** Michael Cruikshank, PG, CHG
- 2:10 p.m. **Using Private Wells to Cost-Effectively Complement and Extend Groundwater-Level Monitoring Networks, Build Consensus and Facilitate Sustainable Management** Marian Singer, Co-founder & CEO
- 2:30 p.m. **The Evolving Landscape of Groundwater Management in California** Timothy K. Parker, PG, CEG, CHG

This session qualifies for up to 1.5 Iowa DNR Contact Hours.

1:45 P.M.-2:45 P.M.

---

**Workshop**
Las Vegas Convention Center Room N205-208
**2018 OSHA Crane Rule for Cranes in Construction**
John Fowler, CSP, CMSP

---

**Workshop**
Las Vegas Convention Center Room N101/102
**Biofilm Presence in Potable Wells and Effective Chemical Treatment Strategies for Removal**
Eric Duderstadt

---

**Workshop**
Las Vegas Convention Center Room N201-204
**Protecting Today’s More Efficient Pump Motors from PWM Damage**
Patrick Hogg

---

Las Vegas Convention Center Room N219-222
Solar Powered Single Phase 3-inch AC Pumps for Replacing Windmills
Nikola Milivojevic, Ph.D.

Las Vegas Convention Center Room N115/116

Tier IV Engines
Fred McAninch and Blake Fahl

These sessions qualify for up to 1 Iowa DNR Contact Hour.

1:50 P.M.-2:30 P.M.

Emerging Contaminants
Las Vegas Convention Center Room N109

- 1:50 p.m. How the PFAS regulations got to where they are and what you can legally do to recover costs for damages Richard Head, JD
- 2:10 p.m. Interstate Technology and Regulatory Council (ITRC) PFAS Team: Status of Achievements and Activities Bill DiGiuseppi, PG

This session qualifies for up to 0.75 Iowa DNR Contact Hour.

2:30 P.M.-3:10 P.M.

Groundwater Remediation including Combined Remedies Part 2
Las Vegas Convention Center Room N109

- 2:30 p.m. Water Treatment Technologies for PFAS: The Next Generation Jeffrey McDonough
- 2:50 p.m. Best Practices for Environmental Site Management: A Practical Guide for Applying Environmental Sequence Stratigraphy to Improve Conceptual Side Models Rick Cramer, PG

This session qualifies for up to 0.75 Iowa DNR Contact Hour.

3:00 P.M.-4:00 P.M.

Jeff Lints

An Introduction to Behavioral Based Safety (BBS)
Bill Lillich

Materials of Construction and Pumps – What to Use When
Kyle Lanier

**Workshop**
Las Vegas Convention Center Room N115/116
*Maximizing Efficiency in the Drilling Process Panel*
Roger Renner, Gary Shawver and Fred Rothauge

**Workshop**
Las Vegas Convention Center Room N101/102
*Redefining Water Treatment Technology Selection for Today's Water Quality Challenges*
Richard Mest

*These sessions qualify for up to 1 Iowa DNR Contact Hour.*

3:00 P.M.-4:30 P.M.

**Workshop**
Las Vegas Convention Center Room N209-212
*Risk Management for the 21st Century Business*
Don Cleveland, Steve Smith, Linda Colasurdo, Courtnee Stevenson and Bonnie North

*This session qualifies for up to 1.5 Iowa DNR Contact Hours.*

3:15 P.M.-4:15 P.M.

**Summit**
Las Vegas Convention Center Room N107/108
*Communicating Groundwater Science*
William Alley, Ph.D. and Rosemarie Alley

**Summit**
Las Vegas Convention Center Room N109
*Design Verification Program - Lessons Learned from Pre-Application Assessments at In Situ Remediation Sites*
Craig Sandefur, Rick Cramer, PG and Chris Lee

**Summit**
Las Vegas Convention Center Room N119/120
*Procurement Practices in the Groundwater Industry*
Fred Rothauge, David Kaminski and Jeffrey Holden, PE, LSP, LEP
Las Vegas Convention Center Room N117
Putting High-Resolution Data to Work: Targeted Conventional and Multi-Level Monitoring Well Design
Robert Stuetzle

These sessions qualify for up to 1.5 Iowa DNR Contact Hours.

4:15 P.M.-5:15 P.M.

Las Vegas Convention Center Room N115/116
Scientific Groundwater Terminology You May Not Fully Understand - Let's Discuss
Roger Miller

Las Vegas Convention Center Room N201-204
Single Phase Motors and Control Testing
Brian Broga

Las Vegas Convention Center Room N205-208
The Essentials for Contractors Working at Surface Mines
John Fowler, CSP, CMSP

These sessions qualify for up to 1 Iowa DNR Contact Hour.

Wednesday, December 5, 2018

10:00 A.M.-5:00 P.M.

Exhibit Hall Open
The Exhibit Hall participation qualifies for up to 1 Iowa DNR Contact Hour.

10:30 A.M.-11:00 A.M.

Las Vegas Convention Center Exhibit Hall Activity Area A
Testing a Single Phase Motor and Controls
Daniel Featherstone

11:00 A.M.-11:30 A.M.

Las Vegas Convention Center Exhibit Hall Activity Area B
The Importance Of Filtrate Control In A Drilling Fluid
Stewart Krause
11:30 A.M.-12:00 P.M.

Las Vegas Convention Center Exhibit Hall Activity Area A
Field pH Measurement Best Practices
Insley Haciski
These sessions qualify for up to 0.5 Iowa DNR Contact Hour.

11:30 A.M.-12:30 P.M.

**Workshop**
Las Vegas Convention Center Room N101/102
Green Infrastructure
Daniel O'Rourke, PG

**Workshop**
Las Vegas Convention Center Room N107/108
Radium Removal from Potable Water Supplies
Peter Meyers

**Workshop**
Las Vegas Convention Center Room N115/116
Resources to Assist You In Outreach and Education to Private Well Owners and Other Professionals
Steven D. Wilson

**Workshop**
Las Vegas Convention Center Room N119/120
Unraveling the Causes of Well Inefficiencies
Thom Hanna, PG

**Workshop**
Las Vegas Convention Center Room N205-208
Useful On-line Tools and Applications for Well Drilling Businesses
Merritt Partridge
These sessions qualify for up to 1 Iowa DNR Contact Hour.

12:00 P.M.-12:30 P.M.

Las Vegas Convention Center Exhibit Hall Activity Area B
Expanding Visual Inspections to Find Overlooked Trouble Spots
Fred McAninch
This session qualifies for up to 0.5 Iowa DNR Contact Hour.

12:30 P.M.-1:00 P.M.

Las Vegas Convention Center Exhibit Hall Activity Area A
Residential Drive Basic Troubleshooting Without a Meter
Daniel Featherstone
1:00 P.M.-1:30 P.M.
Las Vegas Convention Center Exhibit Hall Activity Area B
At the Well Control for the Water Well System
Stephen Anderson
These sessions qualify for up to 0.5 Iowa DNR Contact Hour for each session attended.

1:30 P.M.-2:30 P.M.
Las Vegas Convention Center Room N109-114
Darcy Lecture: Alpine Hydrogeology: The Critical Role of Groundwater in Sourcing the Headwaters of the World
Masaki Hayashi, Ph.D.
This session qualifies for up to 1 Iowa DNR Contact Hour.

1:30 P.M.-2:00 P.M.
Las Vegas Convention Center Exhibit Hall Activity Area A
Seismoelectric Compared To Traditional Geophysics
Ervin Kraemer
This session qualifies for up to 0.5 Iowa DNR Contact Hour.

2:00 P.M.-3:00 P.M.
Las Vegas Convention Center Exhibit Hall Activity Area B
Glass Bead Filter Media: Higher Well Efficiency and Reduced O & M Costs
Reinhard A. Klaus, Hydrogeologist
This session qualifies for up to 1 Iowa DNR Contact Hour.

2:30 P.M.-3:30 P.M.
Las Vegas Convention Center Exhibit Hall Activity Area A
Drunkbusters
Jim Wright
This session qualifies for up to 0.5 Iowa DNR Contact Hour.

2:30 P.M.-3:30 P.M.
Las Vegas Convention Center Room N119-120
Early/New Career Groundwater Professionals Panel: Take My Job, Please!
W. Richard Laton, Ph.D., PG, Steve Sliver, Rick Hutchings, Edd Schofield and Nicklaus Welty
This session qualifies for up to 0.5 Iowa DNR Contact Hour.

2:50 P.M.-3:50 P.M.
Las Vegas Convention Center Room N109-114
McEllhiney Lecture: The Future of Water: Data vs. Instincts
Todd Halihan, Ph.D., P.Gp.
This session qualifies for up to 1 Iowa DNR Contact Hour.
Thursday, December 6, 2018

8:00 A.M.-12:00 P.M.

**Workshop**

Las Vegas Convention Center Room N101/102

**Direct Push Technology - As Useful as Ever...and Cost Effective Too**
Bruce Manchon, PG and John Sciacca, PG

This session qualifies for up to 4 Iowa DNR Contact Hours.

8:00 A.M.-1:00 P.M.

**Exhibit Hall Open**

The Exhibit Hall can qualify for up to 1 Iowa DNR Contact Hour each day it is open.

8:00 A.M.-9:30 A.M.

Las Vegas Convention Center Room N223/224

**Standards Development Oversight Committee**

This session qualifies for up to 1.5 Iowa DNR Contact Hours.

8:30 A.M.-9:00 A.M.

Las Vegas Convention Center Exhibit Hall Activity Area A

**Drill Rig Safety and Maintenance**
George Long

This session qualifies for up to 0.5 Iowa DNR Contact Hour.

9:00 A.M.-10:00 A.M.

Las Vegas Convention Center Exhibit Hall Activity Area A

**Using an Application Program Interface (API) to Simplify Data Import**
Matt Trumbo

These sessions qualify for up to 1 Iowa DNR Contact Hours.

10:00 A.M.-12:00 P.M.

Las Vegas Convention Center Exhibit Hall Activity Area B

**The Groundwater Foundation Presents the Awesome Aquifer**

This session qualifies for up to 1 Iowa DNR Contact Hour.

10:30 A.M.-11:30 A.M.

**Workshop**

Las Vegas Convention Center Room N115/116

**Grouting Tools and Techniques for Geothermal Wells**
Stewart Krause, Todd K. Tannehill and Jeff Blinn
This session qualifies for up to 1 Iowa DNR Contact Hour.

1:00 P.M.-3:00 P.M.

**Workshop**

Las Vegas Convention Center Room N115/116

*Advanced Methods for Monitoring and Sampling in Karst Groundwater Systems*

Jason Polk, Ph.D., James Shelley and Rachel Kaiser

This session qualifies for up to 2 Iowa DNR Contact Hours.

1:00 P.M.-4:00 P.M.

**Workshop**

Las Vegas Convention Center Room N117

*Airborne Electromagnetic Surveys for Hydrogeologic Frameworks and Groundwater Management*

James Cannia, BSc, Jared Abraham, M.Sc. and Ted Asch, Ph.D.

This session qualifies for up to 3 Iowa DNR Contact Hours.

1:00 P.M.-5:00 P.M.

**Workshop**

Las Vegas Convention Center Room N101/102

*Borehole Geophysical Logging for Water Resources/Water Supply Applications*

Bruce Manchon, PG and John Sciacca, PG

This session qualifies for up to 4 Iowa DNR Contact Hours.

1:00 P.M.-3:00 P.M.

**Workshop**

Las Vegas Convention Center Room N107/108

*Direct Push Methods for Groundwater Sampling & Monitoring*

Wes McCall, PG

This session qualifies for up to 2 Iowa DNR Contact Hours.