Speaker Abstracts/Biographies

Thinking Big:
Innovative Solutions for
Groundwater Recharge and Reuse

April 20, 2016
Minnesota Ground Water Association
Spring Conference

Anita Anderson, P.E.

Minnesota Department of Health, Principal Engineer

Presentation

The Water Reuse Support System: Codes, Standards and Information Sharing

Abstract

Minnesota has codes, standards, education programs and resources for water, wastewater and stormwater systems, and we are now in the process of developing the same support system for water reuse. This talk will describe the current state of water reuse regulations in Minnesota, as well as how state agencies and others are working to make water reuse policy recommendations. We will also take a look to the future and how we might define success in the area of water reuse.

Biography

Anita Anderson has 20 years of experience as a water supply engineer with the Minnesota Department of Health. Her primary area of expertise is surface water treatment, specializing in small systems. Currently she is also working on special projects to implement water reuse in Minnesota in a safe and sustainable way and to predict the vulnerability of groundwater drinking water sources to microbial pathogens. She holds a Master's degree in Environmental Engineering from the University of Minnesota and is a registered professional engineer in Minnesota.

Brian Davis, Ph.D., P.G., P.E.

Metropolitan Council Water Supply Planning, Senior Engineer

Wes Saunders-Pearce

City of Saint Paul Dept. of Safety and Inspections, Water Resource Coordinator

Presentation

Harvesting Rainwater for Multiple Uses

Abstract

Construction of CHS Field, home of the St. Paul Saints minor league baseball team, presented unique and challenging opportunities for stormwater management. This presentation describes one of the most innovative BMPs on site: a 27,000 gallon rainwater harvesting system for irrigation and flushing toilets, utilizing rainwater from the adjacent Green Line Operations and Maintenance Facility. The presentation describes how sharing rainwater between properties provided multiple benefits, why this was important, and how this was accomplished. Learn how treatment standards, state statutes and local codes were addressed in harvesting and reusing rainwater. The discussion touches on the challenges and benefits of using design-build construction methods for incorporating rainwater harvesting into a major infrastructure project.

Biography

Brian Davis is a Senior Engineer with the Metropolitan Council Water Supply Planning unit, where he conducts water efficiency, reuse and hydrogeologic studies, water supply planning, and community outreach. Prior to joining the Metropolitan Council, Brian worked as an engineering consultant, designing treatment wetlands for industrial and domestic wastewater treatment as well as conducting groundwater supply and contaminant transport modeling. He began his career as an environmental hydrogeologist with the Chevron Energy Technology Company in Richmond, California. He has a B.S. in Geography from the University of Wisconsin-Whitewater, an M.S. in Environmental Science & Policy from the University of Wisconsin-Green Bay, and a Ph.D. in Civil (Environmental) Engineering from Oregon State University. He is a Registered Professional Geologist (Minnesota) and a Registered Professional Engineer (Minnesota).

Wes Saunders-Pearce is the Water Resource Coordinator for the City of Saint Paul. He joined Saint Paul in 2011 after practicing water resource management for over a decade mainly as a consultant. Wes works across departments to provide leadership for green infrastructure, water resource protection, and climate resiliency strategies. He engages city staff and agency stakeholders to problem-solve policy and administrative barriers to green infrastructure and sustainability. Wes received the 2014 Sustainable City Staff award for his collaboration and leadership in environmental stewardship. Wes holds a Master's degree in Water Resource Science from the University of Minnesota and an undergraduate degree in Environmental Studies from Macalester College in Saint Paul.

Peter S. Cartwright, P.E.

Cartwright Consulting

Presentation

Chloride Removal Through Advanced Treatment Processes

Abstract

Chloride contamination of groundwater supplies is becoming an increasing problem. It is primarily linked to infiltration of sodium chloride from road salt. In addition to increasing the salinity of the water, this ion also contributes to corrosion of metals, including stainless steel. The most practical technology for removal of this contaminant from water supplies is reverse osmosis.

This McEllhiney lecture describes the properties of sodium chloride, and discusses reverse osmosis technology in detail. The factors relating to the design and operation of reverse osmosis systems on both large and small scale are explained.

Biography

Peter S. Cartwright, P.E., entered the water purification and wastewater treatment industry in 1974, and has had his own consulting engineering firm since 1980. He is the technical consultant to the Canadian Water Quality Association and has provided consulting services to more than 250 clients globally. Cartwright has authored approximately 200 articles, written several book chapters, presented more than 200 lectures in conferences around the world, and is the recipient of several patents. He also provides extensive expert witness testimony and technology training courses. Cartwright holds a degree in chemical engineering from the University of Minnesota and is a registered professional engineer in Minnesota.

W. Richard Laton, Ph.D., PG, CHg

California State University, Fullerton, Associate Professor of Hydrogeology

Presentation

Holding Back the Ocean and Recharging Aquifers with Treated Wastewater

Abstract

The urban water cycle: the new norm in the west. The west has experienced drought and population booms over the past few years. Orange County in its quest to become sustainable, embarked on the idea of artificial recharge. The use of highly treated wastewater for injection along the shoreline to hold back the ocean and for percolation upgradient to help provide drinking water to over 2 million people is now the norm. This has led Orange County's water resources to become virtually sustainable.

Biography

Dr. Laton is an expert in the field of geology/hydrology/hydrogeology. He is currently an Associate Professor of Hydrogeology in the Department of Geological Sciences, California State University, Fullerton and was awarded the prestigious NGWA 2014 Ross Oliver award. His career includes years of teaching, consulting, litigation support and management experiences. Dr. Laton received his BS from St. Cloud State and his MS and PHD from Western Michigan University.

Mary Fralish

City of Mankato, Director of Public Utilities

Presentation

Water Conservation Projects in Mankato

Abstract

The city of Mankato has been proactive in water conservation by completing several projects in the last 10 years. A water reclamation facility was built at the end of the wastewater treatment plant which further treats the wastewater to produce Title 22 reuse water for pump and blower cooling at the plant, irrigation water for a city park and cooling water for an electrical generator. Also constructed on site was a pumping station for the reuse water which is used for street sweeping, sod establishment, pipe testing and other uses. This amount of reuse water is about 175 million gallons per year. The water treatment plant has just completed a project to reroute the backwash water from the ultra-low membrane filters to the head of the plant with the potential to save another 250 million gallons of water per year.

Biography

Mary Fralish is a Mankato native. She received a Bachelor's Degree in Biology with a minor in Chemistry from Mankato State University. Mary began her career with the City of Mankato shortly after graduation from college as the Chemist for the Wastewater Treatment Plant. Over 41 years with the city she has moved from that position to Wastewater Plant Superintendent, Public Works Director and most recently to the position of Public Utilities Director. She oversees the water wells, reservoirs, treatment facility, the wastewater lift stations and treatment facility, plus refuse and recycling.

Christopher Larson, P.E.

SEH, Project Manager

Presentation

Aquifer Storage and Recovery, Joint Powers Water Board

Abstract

The Joint Powers Water Board (JPWB) supplies potable drinking water to the communities of Albertville, Hanover, and St. Michael, Minnesota. These communities have a combined population of approximately 25,000. In 2006, in response to increasing water demand, JPWB began investigating the feasibility of Aquifer Storage and Recovery (ASR).

ASR is a relatively new water supply management concept whereby treated drinking water is stored in a suitable aquifer via a well when the water treatment plant (WTP) production capacity exceeds demand. The stored water is later recovered from the same well once demand exceeds capacity of the WTP. The recovered water retains its treated qualities and does not have objectionable aesthetic compounds. Implementation of ASR offsets the need to expand the water treatment plant and provides storage and hydraulic benefits.

JPWB currently injects up to 100,000,000 gallons of water annually in the Mt. Simon aquifer during the winter when the WTP has excess capacity. The injection water comes directly from the JPWB distribution system. The water is recovered in the summer when water demands are high. The ASR process allows JPWB to offset costs associated with a new water treatment plant and provides operational flexibility.

Biography

Education: BS Environmental Engineering, Michigan Tech, 1995
MS Environmental Engineering, University of Minnesota, 2007
Years in Present Position at SEH: 6 (21 years total)
Present Responsibilities: Water Supply and Treatment Planning and Design

Deborah Manning, P.E.

Metropolitan Council Environmental Services, Principal Engineer

Presentation

Creative Planning for Wastewater Reuse

Abstract

Reuse of highly treated municipal wastewater is an integral part of water management. Metropolitan Council Environmental Services is planning for and implementing wastewater reuse in several settings. Drivers and policies set the stage for reuse and sub-regional scenario development and studies provide a mechanism for discussions with stakeholders. Through this collaborative approach, wastewater reuse's place in addressing issues, including groundwater issues, can unfold in ways that best serve the Twin Cities.

Biography

Ms. Manning is a Principal Engineer with Metropolitan Council's Environmental Services, with a B.S. and M.S. in civil/environmental engineering from Virginia Tech. Throughout her career, Ms. Manning has worked with water and wastewater utilities to meet upcoming regulatory, system expansion, and level of service requirements. She is a proud member of the Select Society of Sanitary Sludge Shovelers.