



Sidney has more than twenty years of experience in environmental services including contract wastewater operations, operator training, utility planning, biochemical treatment processes, comprehensive performance evaluations, wastewater process modeling, laboratory operations, environmental assessments, environmental permitting and compliance, chemistry, and toxicology.

**Experience Summary:**

Sidney is a certified A wastewater and A industrial treatment plant operator in Colorado. She served as the ORC for the CDOT/Jalisco groundwater treatment system at I-25 and Alameda and as a technical consultant on water treatment for CDOT. She was the ORC for the Northglenn WWTP and the Lepirino Foods Company WWTP in Ft. Morgan, Colorado.

Sidney has developed numerous operations training programs for both water and wastewater and gives training classes and seminars across the United States. Her hands-on experience operating treatment plants helps to ensure operator friendly processes and final design. She is an adjunct professor at the Colorado School of Mines where she teaches Pollution Prevention.

Sidney began her career as a trace metals and wet chemistry chemist at Rocky Flats. She has over twelve years of direct laboratory experience in NELAC certified and Superfund laboratories. She conducts friendly laboratory audits and training for wastewater treatment plants throughout the United States.

Sidney has developed or audited BioWin computer models for nitrification, denitrification; and biological phosphorus removal for the \$12 million Northglenn WWTP, the Boulder 75<sup>th</sup> Street WWTP, the Las Vegas Street WWTP in Colorado Springs, and several industrial facilities. Her Ph.D. research focused on biological nitrification and coursework focused on environmental regulations including water, air, landfills, and RCRA.

**Education:**

Ph.D., Environmental Science & Engineering, Colorado School of Mines, 2001  
Master of Science, Environmental Science & Engineering, Colorado School of Mines, 1998  
Bachelor of Science, Chemistry / Bachelor of Science, Biology, Regis University, 1993

**Certifications:**

Professional Engineer, Colorado, 38830  
Colorado Certified Class A Wastewater Treatment Plant Operator, #568, 12170  
Colorado Certified Class A Industrial Wastewater Treatment Plant Operator, #568, 12746

**Employment History:**

August 1990 – May 1995 Rocky Flats Environmental Test Site – Chemist  
May 1995 – Sept 2001 Littleton/Englewood WWTP – Chemist  
Sept 2001 – March 2002 RTW Engineering – Environmental Scientist  
March 2002 – October 2007 Integra Engineering – Environmental Scientist  
October 2007 – Present Indigo Water Group – Principal and Founder

**Offices:** Water Environment Federation Plant Operations and Maintenance Committee Vice-Chair  
Past Offices Held:  
Rocky Mountain Water Environment Association Membership Chair  
Rocky Mountain Water Environment Association Professional Wastewater Operators Chair  
Technical Program Chair for RMSAWWA / RMWEA Joint Annual Conference (Five years: Casper, Angel Fire, Grand Junction, Steamboat Springs, and Copper Mountain)  
WEFTEC Program Committee Chair for Plant Operations and Maintenance Symposia

## SELECTED PROJECT EXPERIENCE

### Utility Planning

- Clifton Sanitation District Wastewater Utility Plan Update, Clifton, Colorado – Principal
- Town of Erie Wastewater Utility Plan Update, Erie, Colorado – Principal
- Water and Wastewater Utility Planning, Victor, Colorado – Principal
- Wastewater Utility Plan, Meeker, Colorado – Principal
- Wastewater Feasibility Study, Brush, Colorado – Project Manager
- Environmental Report for Wastewater Treatment Plant Upgrade, Brush, Colorado – Project Manager
- Wind Cave National Park Environmental Site Assessment, Wind Cave, South Dakota – Project Manager
- Wild Basin Lodge Utility Plan, Allenspark, Colorado – Principal / Project Manager
- Northglenn Wastewater Treatment Plant Utility Plan, Northglenn, CO – Environmental Scientist
- Wastewater Process Optimization and Facility Plan; Carbondale, CO – Project Manager
- Water and Wastewater Infrastructure Plan, Thornton, CO – Environmental Scientist
- Wastewater Treatment Plant Siting Study; Carbondale, CO – Project Manager
- Wind River Ranch Facility Evaluation and Regulatory Assistance; Estes Park, CO – Project Manager
- Nitrification Upgrades; Mountain Water and Sanitation District – Environmental Scientist
- Fairways Wastewater Treatment Plant, Boulder, CO – Project Manager
- City of Elko, Nevada Wastewater Treatment Plant Master Plan, Elko, Nevada – Senior Consultant

### Comprehensive Performance Evaluations

- Fremont Sanitation District, Florence, Colorado – Principal
- Comprehensive Performance Evaluation, Town of Carbondale, Colorado – Project Manager
- Wastewater Feasibility Study, Brush, Colorado – Project Manager
- City of Victor, Colorado Wastewater Treatment Plant Comprehensive Performance Evaluation – Principal / Project Manager
- Town of Erie, Colorado South Wastewater Reclamation Facility Comprehensive Performance Evaluation
- Town of Meeker, Colorado Wastewater Treatment Plant Comprehensive Performance Evaluation

- Coors Brewing Company Comprehensive Performance Evaluation, Golden, CO – Environmental Scientist
- Elko Wastewater Treatment Plant, Elko, Nevada – Environmental Scientist
- City of Dinuba, California Wastewater Treatment Plant Comprehensive Performance Evaluation – Environmental Scientist
- Wild Basin Lodge, Allenspark, CO – Principal
- Wind River Ranch, Allenspark, CO – Principal

#### **Biological Process Modeling and Collection System Modeling**

- Hydrogen Sulfide Investigation, Clifton Sanitation District, Clifton, CO – Principal
- Biowin Modeling, Clifton Sanitation District, Clifton, Colorado – Principal
- Collection System Modeling, Brush, Colorado – Principal
- Collection System Modeling, Meeker Sanitation District, Meeker, Colorado – Principal
- Sewer Model Development and Evaluation; Northglenn, CO – Project Manager
- Sewer Model Development and Evaluation; Thornton, CO – Environmental Scientist
- BioWin Modeling and Basis of Design Review, Leprino Foods Company; Lemoore, CA
- Las Vegas Street WWTP Process Evaluation, Colorado Springs Utilities – Environmental Scientist.
- Biowin Model Verification for Boulder 75th Street WWTP; Boulder, CO – Environmental Scientist
- Trickling Filter and Nitrifying Trickling Filter Optimization, Boulder, CO – Project Manager
- Biowin Modeling and Basis of Design, Northglenn WWTP; Northglenn, CO – Environmental Scientist

#### **Pilot Projects, Plant Start-Ups, Contract Operations, and O&M Manuals**

- Pilot Plant for Denitrification of RO Brine Reject, City of Brighton WTP, Brighton, CO – Subconsultant to JVA Engineering
- Wastewater Treatment Plant Startup Assistance, City of Buffalo, WY
- Chief Plant Operator – Leprino Foods at Fort Morgan, CO
- Backup Chief Plant Operator – City of Northglenn WWTP, Northglenn, CO
- Operator in Responsible Charge – Pump and Treat Groundwater System for Jalisco, International – Denver, CO
- Operations and Maintenance Manual – Town of Oak Creek WWTP, CO
- Operations and Maintenance Manual – Wolf Creek Ski Area WWTP, Pagosa Springs, CO
- Operations and Maintenance Manual – Three Lakes WWTP, Granby, CO
- Operations and Maintenance Manual – St. Vrain Sanitation District WWTP, Firestone, CO

#### **Training Courses**

- Over 22 years of experience as a trainer and tutor.
- Adjunct Professor at Colorado School of Mines.
- Invited guest lecturer at Red Rocks Community College, Boulder Operators School, Leadville Operators School, Boulder Fundamentals School, and University of Tennessee at Knoxville.
- Small Water Systems On-Site Training and Webinar Series through State of Colorado Capacity Development Unit for 2012. Rewarded for 2013. Webinar series included 16 webinars on different topics relevant to small water systems.
- Customized on-site training in a variety of topics for the following entities:

- Alameda Water and San. Dist.
- City of Boulder
- City of Broomfield
- City of Buffalo, WY
- Town of Carbondale
- Cargill Meat Solutions
- CDPHE WQCD
- Centennial W&SD
- Clifton Sanitation District
- Colorado Springs Utilities
- City of Dinuba, California
- City of Durango
- Crested Butte South Metro District
- East Cherry Creek Valley W&SD
- Town of Erie
- WasteWater Technology Trainers
- City of Fort Collins
- Denver Water
- Fremont Sanitation District
- Frisco Sanitation District
- Genesee W&SD
- City of Grand Junction
- Granby Sanitation Dist.
- Highview Water District
- Johnson Controls
- City of Lafayette
- City of Lakewood
- Leprino at Allendale, MI
- Leprino at Denver, CO
- Leprino at Ft. Morgan, CO
- Leprino at Greeley, CO
- Water Environment Federation
- Leprino at Lemoore, CA
- Los Angeles County SD
- Meeker Sanitation District
- City of Northglenn
- Parker W&SD
- City of Pueblo
- RMWEA PWO
- RMWQAA
- Town of Silverthorne
- Silverthorne/Dillon JSA
- Three Lakes W&SD
- City of Victor
- Widefield W&SD

### Training Course Development

- Small Water Systems Webinar Series – These webinar series was developed as part of a drinking water training grant from the State of Colorado Capacity Building Unit. The webinar series was based on ACRP's course book – Introduction to Small Water Systems – and included 16 individual webinars that varied in length between 1 and 2 hours. In 2012, over 144 operators took part in the webinar series with 78 unique PWSIDs reached. Attendees completed an average of 11 webinars and more than 60 attendees completed all 17 webinars. Pre- and post-test score results for each webinar had an average improvement (average post-test scores minus average pre-test scores) between 11.7 and 33.9 percent. Improvements in the minimum scores were much more exaggerated with average minimum scores jumping by as much as 60 percent.
- Small Water Systems Workshops – Curriculum for these workshops were developed as part of a drinking water training grant from the State of Colorado Capacity Building Unit. Eleven on-site training workshops were conducted throughout the State. They focused on disinfection, averaged 16 attendees per class, and had a total of 176 attendees. For each workshop, the average post-test scores were between 17.6 and 40.3 percent higher than the pre-test scores. Even more impressive is the difference between the lowest test scores recorded at each venue at pre- versus post-testing. The lowest test scores jumped from as low as zero (none correct) to as high as 82.4 percent.
- One-Day Advanced Nutrient Removal Course – This one day training course covers Colorado nutrient criteria regulations, nitrification, denitrification, biological phosphorus removal, and chemical phosphorus removal. This advanced course discusses operational controls and troubleshooting. Participants use plant specific data to create mass balances, explore the impact of recycle streams, and troubleshoot case histories.
- Three Day Wastewater Exam Cram – Sidney developed all of the course materials for a three-day intensive wastewater training course meant as a review and preparation for operator certification exams. The three day course includes relevant topics for each level of certification and is organized so topics increase with difficulty as the course builds. Day one topics include basic math, pumps, lift stations, lagoons, fixed film

processes, disinfection, and completing the discharge monitoring report. Day two topics include advanced math, activated sludge basics, nitrogen removal, and chemical and biological phosphorus removal. Day three topics include solids handling, activated sludge troubleshooting, representative sampling, and various laboratory procedures. The course has been given between four and eight times a year for the past four years and has earned rave reviews from attendees.

- On-Line Wastewater Training – Sidney has developed ten on-line training course for water and wastewater operators that are hosted through the Indigo Water Group website. Topics include geometry, hydraulics basics, hydraulics and pumped systems, chlorine disinfection, lagoons and fixed film processes, lift stations, pumps, pretreatment and pollution prevention, nitrogen removal, and phosphorus removal. Since their introduction in August 2011, more than 100 operators have attended on-line courses.
- Laboratory Training and Setup – Sidney worked as a chemist at Rocky Flats and the Littleton/Englewood Wastewater Treatment Plant for the first twelve years of her career. Her laboratory skills are used to help small municipalities set up their on-site testing laboratories and to provide friendly audits to help ensure compliance with requirements under Standard Methods and EPA protocols. Some of the many municipalities that have received laboratory training include: Leprino Foods Company, Cargill Meat Solutions, Granby W&SD, the City of Victor, Tabernash Meadows, City of Dinuba, California, the Town of Silverthorne, Frisco Sanitation District, Town of Silverthorne, Widefield W&SD, Clifton SD, and the Meeker SD.
- Water Environment Federation Laboratory Manual – Sidney served as the Task Force Chair and as a primary author of a new laboratory manual for water and wastewater operators. The manual includes simplified step-by-step directions for laboratory tests commonly used in water and wastewater such as fecal coliforms, residual chlorine, total suspended solids, and others. The manual is unique in that it ties laboratory results back to process control by recommending sampling locations and giving typical ranges for various parameters. The book was published in February 2012.

## SELECTED PUBLICATIONS

**Sidney Innerebner** (2013) Capturing Knowledge and Creating Computer Based Training, presented at the Joint Annual RMWEA / RMSAWWA Conference in Keystone, Colorado

**Dennis Crock, David Anderson, Sidney Innerebner, Angela Kana-Spitz, and Mark Van Nostrand** (2013) Meeting Permit Limits for Discharge of Brine Wastewater (Denitrification), presented at the Joint Annual RMWEA / RMSAWWA Conference in Keystone, Colorado

**Water Environment Federation** (2012) Basic Laboratory Procedures for the Operator–Analyst: Fifth Edition, prepared by the Basic Laboratory Procedures Task Force of the Water Environment Federation, Alexandria, VA  
Chair and Principal Author

**Water Environment Federation** (2009) An Introduction to Process Modeling for Designers: WEF Manual of Practice No. 31, prepared by the Design of Municipal Wastewater Treatment Plants (MOP 8) Task Force of the Water Environment Federation, Alexandria, VA  
Contributing Author

**Sidney Biesterfeld, Mark Dane, Richard Dingeman, Dan Freeman, Paul Heppler, Kurt Keilbach, Ernie Oram, David Paterniti, Dan Waddas, and Mike Lutz**, (October 2004) Impact of Water Treatment Plant Residuals on Fixed Film Wastewater Treatment, presented at the 77th Annual Water Environment Federation Conference, New Orleans, Louisiana.

**Sidney Biesterfeld, Mark Dane, Richard Dingeman, Dan Freeman, Paul Heppler, Kurt Keilbach, Ernie Oram, David Paterniti, Dan Waddas, and Mike Lutz, (September 2004)** Optimizing the Trickling Filter Solids Contact Process for Nitrification, presented at the RMWEA / RMSAWWA Joint Annual Conference, Grand Junction, Colorado.

**John Bratby, Greg Farmer, Mark Van Nostrand, Karen DeFazio, Sidney Biesterfeld, and Kirk Petrik (2003)** “Mitigating the Cost of Denitrification in Fixed Film Plant with Nitrate Recycle” Presented at WEFTEC 2003; Los Angeles, California; October 10–16

**Sidney Biesterfeld, Greg Farmer, Linda Figueroa, Denny Parker, and Phil Russell (2003)** “Quantification of Denitrification Potential in Carbonaceous Trickling Filters” Wat. Res. 37: 4011–4017

**Sidney Biesterfeld, Linda Figueroa, Greg Farmer, and Phil Russell (2003)** “Effect of Alkalinity Type and Concentration on Nitrifying Biofilm Activity” Wat. Env. Res. 75(3): 196–204 Presented at WEFTEC 2001, Atlanta, Georgia, October 12–17

**Eric Wahlberg, Sidney Biesterfeld, Greg Farmer, David Kinnear, and Leonard Robb (2002)** “A New Activated Sludge Process Control Test Uncovers Secondary Clarifier Inefficiencies” Presented at WEFTEC 2001, Atlanta, Georgia, October 12–17