TODD DEJOURNETT, PHD, PE

Education

Ph.D., Environmental Engineering, University of Minnesota, Minneapolis, Minnesota, 2005

M.S., Environmental Engineering, University of Iowa, Iowa City, Iowa, 1998

B.S., Civil Engineering, University of Missouri-Rolla, Rolla, Missouri, 1997

Professional Licenses

Professional Engineer – Arizona, Minnesota, Montana, New Hampshire, North Carolina, Texas

Professional Affiliations

Society for Mining, Metallurgy, and Exploration Minnesota Section

Professional Experience

Todd DeJournett is a project director specializing in industrial water and wastewater treatment process design. He has over 20 years of experience helping clients in the mining, food and beverage, fuels, power, manufacturing, and municipal sectors make sound decisions regarding water and wastewater treatment and reuse. Todd's expertise includes treatment of a variety of emerging trace organics, such as 1,4-dioxane, sulfolane, and PFAS, treatment of metals and metalloids, whole effluent toxicity reduction, lead and copper corrosion potential evaluation, and treatment of dissolved solids such as sulfate, chloride, and bicarbonate. Todd has experience in treatment of tailings basin water, mine drainage/process water, refinery wastewater, coal combustion residual (CCR) wastewater, manufacturing wastewater, industrial acids, and potable water.

Todd developed new chemical modeling approaches and tools for adsorption, precipitation, pH adjustment, and other processes to assist with treatment process design, optimization, and troubleshooting of existing systems. Todd also adapted exploratory statistics/data mining methods using process and instrumentation data to aid in wastewater treatment process optimization/ troubleshooting and is currently leading the development of similar approaches to forecast the impact of climate change on water demand in industrial and municipal settings.

Todd is a member of the Minnesota section of Society for Mining, Metallurgy, and Exploration (SME) and is a contributing author to the Interstate Technical and Regulatory Council (ITRC) fact sheet on remedial technologies for PFAS.

Water/Wastewater Treatment in the Power Industry

Confidential Coal Power Generation Facility, Kentucky, Arsenic Treatment in Ash Pond Dewatering Discharge. Design lead for a system to remove arsenic and suspended solids from ash pond dewatering discharge. The design comprised the use of aerated equalization tanks to oxidize iron, followed by polymer addition, settling, and pH adjustment to remove the iron along with adsorbed arsenic. The design also accommodated dewatering volumes associated with precipitation events occurring during dewatering activities.

Confidential Coal Power Generation Facility, Montana, CCR Groundwater Remediation. Served as engineer of record for the design of three freshwater flushing systems to facilitate flushing and

subsequent capture of CCR groundwater constituents (sulfate and boron) from beneath former CCR disposal impoundments. The design included filtration, chlorination, and dechlorination of river water prior to distribution of the water to individual injection wells throughout the site. Overall, the systems included over 169 individual injection wells; over 25 miles of distribution piping; and associated pumps, controls, and instrumentation to achieve the desired injection flow rates and pressures at the injection wells.

Confidential Coal Power Plant, Minnesota, Pilot Testing/Alternatives Analysis to Dewater Legacy Ash Pond. Acted as technical lead for pilot testing/alternatives analysis to dewater a legacy ash pond (~700 MG). Alternatives included treatment for NPDES discharge and treatment for reuse in new air pollution control equipment. Water quality issues included boron, sulfate, magnesium, and selenium. Technologies included reverse osmosis, nanofiltration, lime precipitation, ettringite precipitation, evaporators, and crystallizers. Evaluated geochemical stability of treatment residuals.

Confidential Coal Power Plant, Minnesota, Pilot Testing and Alternatives Analysis. Acted as technical lead and project manager for pilot testing and alternatives analysis for upgrades to achieve compliance with GLI mercury standard in ash pond discharge. The final design included chemical feed and pressure media filtration.

Confidential Power Plant, Minnesota, Process Modeling to Assist with pH Control Strategy and Water Quality Estimates. Acted as technical lead for GoldSim process modeling to assist with pH control strategy and water quality estimates to support permitting for a natural gas conversion to an existing coal-fired power plant.

Water/Wastewater Treatment in the Mining Industry

Confidential Copper-Nickel Mine, Canada, Mine Water and Mass Balance Modeling. Acted as technical lead overseeing development of a GoldSim water management tool for the facility. The model incorporates hydrological inputs, snowmelt, pit overflows, pumps, siphons, and wastewater treatment plants. The model was used to evaluate deficiencies in the water management infrastructure under a variety of future scenarios, including various climate change scenarios, and to evaluate loads to receiving bodies relative to their assimilative capacity. This information was used by the design team to develop a range of infrastructure improvements that were then tested using the model to evaluate their efficacy in reducing the risk overflow of wastewater to the environment.

Confidential Mining Client, Minnesota, Natural Attenuation and Flow Augmentation Feasibility Study. Served as project director on a feasibility study to reduce sulfate concentrations and mass loading to a receiving stream subject to future National Pollutant Discharge Elimination System (NPDES) sulfate limits. The proposal solution incorporated flow augmentation using water from a nearby mine pit for near-term compliance and monitored natural attenuation for long-term compliance. The feasibility study included hydrological and water quality modeling to evaluate potential future trends in sulfate concentration and load under different climate scenarios, as well as estimation of the amount of water available for augmentation. A statistical “trigger” was established for use in future annual evaluations of natural attenuation progress to determine if stockpile capping should be implemented due to slowing or ceased attenuation.

Confidential Coal Mining Client, Ohio, Total Dissolved Solids (TDS) Alternatives Analysis. Served as project manager to evaluate remedial alternatives to reduce TDS loading from refuse areas, impoundments, and mine workings to receiving streams in support of a NPDES permit variance application. The team recommended additional flow and water quality sampling and developed a watershed-level mass balance model to evaluate different remedial strategies applied at the various

source locations. The team evaluated mine pool injection during low flow periods as the preferred alternative for maintaining compliance.

AEP Dolet Hills Facility, Louisiana, Automation for Control of Acid Mine Drainage (AMD) Treatment Equipment. Acted as technical lead on a project to add solar-powered automatic valves to sodium hydroxide gravity feed systems to improve reliability of AMD neutralization and reduce labor costs. Developed data collection recommendations to allow evaluation of flow, pH, and acidity at the drainage outfalls. This data was used to develop sodium hydroxide control logic, pacing the feed rate to AMD flow. Selected and specified an actuated valve, controller, weir and automatic flow meter, pH logger, and transmitter, along with solar power supply.

Confidential Molybdenum Processor, Iowa, Passive Treatment to Remove Dissolved Molybdenum from Stormwater. Acted as technical lead on a project to develop passive treatment best management practices (BMPs) to remove dissolved molybdenum from industrial stormwater. Directed a series of bench tests to evaluate the adsorptive capacity of different iron/sand media. Developed a pilot test based on bench test results incorporating autosamplers upstream and downstream of the media to document mass removal. Developed a full-scale design based on the pilot results to achieve reduction in molybdenum load in the site stormwater.

Confidential Cobalt Mine, Missouri, Mine Dewatering Discharge Treatment. Served as technical lead assisting the client with selection and procurement of treatment equipment to remove copper, nickel, and cobalt from mine dewatering discharge. Worked with the equipment vendor to evaluate bench test results, select treatment chemistry, and identify major equipment components for the 2,500-gpm system.

PolyMet NorthMet Project, Hoyt Lakes, Minnesota, Copper/Nickel Mining. Acted as treatment process design lead and task manager for water/wastewater treatment project. Processes included reverse osmosis, nanofiltration, and chemical precipitation for removal of sulfate and metals. Conducted pilot testing in support of the design and developed an integrated process model allowing optimization of treatment operations to minimize capital and O&M costs. Served as project manager and technical lead for a pilot test and process design to remove mercury from lake water to provide a source for stream augmentation.

Confidential Lead Mining Client, USA, Bench/Pilot Testing and Treatment Process Design. Acted as technical lead and task manager for bench/pilot testing and treatment process design for active and passive solutions to remove zinc, copper, and chronic whole effluent toxicity (WET) from mine dewatering discharge and tailings basin seepage at multiple sites. Approaches included chemical precipitation/media filtration, passive bioreactors, and passive iron-amended gravel reactors.

Confidential Uranium Mining Client, Canada, Pre-Feasibility Level Process Design. Acted as technical lead and task manager for a pre-feasibility level process design for removal of radionuclides and metals from mining-impacted waters from exploratory drilling through development of mine.

Confidential Iron Mining Client, Minnesota, Bench Testing and Alternatives Analysis. Acted as technical lead and task manager for bench testing and alternatives analysis for removal of iron and suspended solids from tailings basin relieve well discharge.

Confidential Iron Mining Client, Minnesota, Bench/Pilot Testing and Process Design for Treatment Alternatives. Acted as technical lead and task manager for bench/pilot testing and process design for treatment alternatives (media filtration, sedimentation, in-sump management alternatives) to achieve compliance with the Great Lakes Initiative (GLI) mercury standard in mine pit dewatering discharge.

Confidential Iron Mining Client, Minnesota, Bench/Pilot Testing and Process Design. Acted as technical lead for bench/pilot testing and process design for a system to remove mercury from landfill leachate prior to disposal at a publicly-owned treatment works (POTW). System included scavenger chemical feed and cartridge filtration.

Confidential Iron Mining Client, Minnesota, Sampling Plan and Treatment Recommendations. Developed sampling plan and provided recommendations to mitigate high pH in discharge from pond receiving stormwater runoff from the taconite processing facility.

Confidential Soda Ash Mining Client, USA, Bench Testing, Process Design, and Economic Analysis. Acted as technical lead and project manager for bench testing, process design, and economic analysis for a high-pressure nanofiltration system to allow processing of pond water in the plant with subsequent recovery of product.

Oil Sands Processing Client, Canada, Process Model Development. Acted as technical contributor to a process model developed to track the accumulation of sodium bicarbonate in the tailings basin due to the recycling of tailings basin water to the extraction process.

Confidential Boron Mining Client, USA, Alternatives Analysis. Acted as a technical contributor to assist with an alternatives analysis for troubleshooting evaporation ponds to improve performance and mitigate the formation of a crust layer on the pond surface.

Confidential Coal Mining Client, Canada, Failure Mode and Effects Analysis and Alternatives Analysis. Acted as technical lead and conducted Failure Mode and Effects Analysis (FMEA) and alternatives analysis for reducing selenium leaching potential in wastewater treatment solids to facilitate on-site landfilling.

Water/Wastewater Treatment in the Food and Beverage Industry

Confidential Beverage Bottler, Minnesota, Water Risk Evaluation. Engineer of record for an evaluation of water risk at the facility. The evaluation included walking down water, process, and wastewater piping at the facility to confirm uses, treatment, and waste generation points. Evaluated the local water supply for risks to adequate quantity and quality (e.g. emerging contaminants such as PFAS). Evaluated the MCES wastewater treatment plant receiving the facility's wastewater for risks related to future capacity issues or new pretreatment requirements. Provided an assessment of potential benefits of waste reduction or water reuse projects at the facility.

Confidential Ham Processor, Nebraska, SIU Evaluation and Pretreatment Permit Application. Technical lead and project manager on a project to evaluate Nebraska Department of Energy and Environment's (NDEE's) tentative determination that the facility is a significant industrial user (SIU). Work included evaluation of applicable federal industrial point source categories and potential impacts of proposed effluent limitations guidelines changes for the meat and poultry category. Assisted the client in preparing a permit application for submittal to the Nebraska Pretreatment Program (NPP).

Confidential Mexican Food Manufacturer, Texas, Wastewater Treatment System Operational Assessment and Design. Served as engineer of record for the evaluation of existing treatment equipment, development of a design basis, and selection of process equipment for a Mexican food manufacturing facility. The project was in response to requirements placed on the facility by the City as a condition of approval of a planned facility expansion. Recommendations included the addition of an automated grease interceptor, a screen for suspended solids, and a larger capacity DAF.

Confidential Vinegar and Mustard Producer, New Hampshire, Engineering Investigation, Environmental Assessment, and Environmental Compliance Plan. Project manager and engineer of record for investigation of root causes for observed low pH readings in a creek that runs across the Facility property. Scope includes evaluation of water, process, and wastewater piping, development of a water and materials balance for the facility, investigation of sources due to historical release of product or wastewater, and development of recommendations for corrective actions. This project requires coordination with the client, legal counsel, USEPA Region 1, New Hampshire Department of Environmental Services, and the US Department of Justice.

Confidential Grease Processor, Texas. Litigation Support for Wastewater Issues. Technical expert assisting the client in mediation and other negotiations with City officials regarding upsets at the City wastewater plant allegedly caused by fat oil and grease in the client's wastewater discharge. Work included review of sampling information collected by the City, review of the City's wastewater treatment plant design and operation, and participation in mediation sessions with the City, client, and legal counsel to negotiate terms for removal of a plug installed by the City in the facility's sewer line. Negotiations also included a new proposed strength surcharge fee structure.

Confidential Sugar Beet Processor, Idaho, Process Wastewater Treatment Alternatives Evaluation. Acted as technical lead for an evaluation of wastewater treatment upgrades to address high mass loadings of COD and nonvolatile dissolved solids in high-strength wastewater from a sugar beet processor. The project required development of a flow and load design basis from wastewater and production data over the course of multiple campaigns and juice runs. The team developed advantages, disadvantages, and costs for multiple alternatives, including pretreatment and discharge to City sewer, addition of aerobic or anaerobic treatment capacity, and the addition of polishing technologies, such as lime softening and reverse osmosis/nanofiltration for reduction of Non-Volatile Dissolved Solids (NDVs).

Confidential Sugar Cane Processor, Florida, Cane Mud Dewatering Evaluation. Acted as technical lead for an evaluation of alternatives to address dewatering issues with cane mud waste at a sugar cane mill in Florida. Evaluation of settling and dewatering of the mud revealed the production of gas bubbles within the mud solids and eventual floatation of the thickened solids within the ponds. Subsequent discussions with operators identified the practice of calcium nitrate addition, initiated to assist with odor control, as a potential contributor to gas generation due to denitrification within the mud solids. Concerns over odor issues precluded discontinuation of the calcium nitrate feed, so a procedure to skim floating solids from the pond using a long-reach backhoe was developed.

Confidential Sugar Beet Processor, Minnesota, Effluent Toxicity Reduction, Chemical Oxygen Demand Removal, and Nutrient Removal. Served as technical contributor on a variety of projects related to effluent toxicity reduction, chemical oxygen demand removal, and nutrient removal. Assisted with bench/pilot test design, and alternatives analysis to improve reliability of treatment for existing upflow anaerobic sludge blanket (UASB) and aerobic activated sludge systems.

Confidential Brewery, Minnesota, Feasibility Study for On-site Pre-Treatment Alternatives. Served as technical lead for a feasibility study for on-site pre-treatment alternatives for brewery wastewater.

Confidential Food Canning Plant, Minnesota, Reduction of Sewer and Water Charges. Served as technical lead and project manager for alternative evaluation to reduce sewer and water charges for the facility.

Drinking Water Treatment

Confidential Residential Client, Minnesota, PFAS Compliance in Drinking Water. Served as project director for an alternatives analysis and grant application for a residential development to comply with Minnesota Pollution Control Agency (MPCA) PFAS requirements in drinking water. The 500-unit residential development currently has potable supply wells that contain PFAS concentrations above the action threshold for drinking water. Led the evaluation of alternatives to supply compliant drinking water to the development including connection to nearby City supply, drilling new wells, adding centralized treatment, and adding point-of-entry treatment. Assisted the client in the preparation of a grant application to obtain funding for design and implementation of improvements to comply with PFAS requirements.

Joint Water Commission, Minnesota, Evaluation of Possible Aesthetic Impacts. Led a technical evaluation of possible aesthetic impacts associated with emergency augmentation of the surface drinking water supply with groundwater. Work included chemical modeling and bench testing to identify potential for iron or calcium carbonate precipitation.

City of New Brighton, Minnesota, Upgrade to City Drinking Water System. Served as process design lead for an upgrade to the City drinking water system to remove 1,4-dioxane. Oversaw pilot testing of UV-peroxide and ozone-peroxide treatment technologies. Provided technology selection and implementation recommendations to support procurement and installation of new equipment. Provided technical direction for mitigation of lead/copper corrosion/disinfection compatibility risks associated with a temporary switch from groundwater to surface water source. Provided ongoing technical support to operators in response to questions from residents regarding their water quality.

Confidential Client, Alaska, Point-of-Entry Treatment. Provided process design and oversaw testing of point-of-entry treatment systems to remove sulfolane from private well water. Worked with an equipment supplier to develop a modular design that could be deployed in over 150 residences. Worked with an equipment supplier to obtain pilot data and completed the application process on behalf of the client to obtain third-party certification of the equipment under the Water Quality Association's Gold Seal program. Developed an operation and maintenance (O&M) program and parameters for the systems. Provided technical support to client staff in response to questions from residents regarding their water quality. Provided recommendations for copper corrosion control where needed.

Water/Wastewater Treatment in the Fuels Industry

Confidential Refinery, St. Paul Park, Minnesota, API Separator Overflow Chokepoint Analysis. Acted as project director and engineer of record on a study to identify stormwater and wastewater treatment infrastructure upgrades required to eliminate oil overflows from the API separator during storm events. The project includes collection of site infrastructure and flow information, modeling the conveyance of storm event runoff through the system, and estimating the total volume and peak flow rates of water reporting to the API separator from the oily water sewer. Possible alternatives included enhanced stormwater segregation, stormwater equalization and pumping upgrades, wastewater treatment plant capacity upgrades, and addition of a separate stormwater treatment system.

Confidential Oil Refinery, California, Wastewater Treatment Lagoon Odor Root Cause Analysis. Acted as project manager on a root cause investigation to determine the cause of odor events from a wastewater treatment lagoon at the refinery. The work included evaluating process data, including dissolved oxygen, sulfur species, pH, and flow/water level patterns. Recommended the deployment of water quality sondes at key locations in the lagoon system to evaluate variation in water quality conditions and trigger corrective measures.

Confidential Fuel Terminal, Texas, Stormwater pH Adjustment System Design. Served as engineer of record for design of a system to lower pH of stormwater using carbon dioxide prior to discharge in order to comply with stormwater permit limits at a Texas fuel terminal. Worked with the client to source components materials for the system and integrate system controls with existing pump controls. Developed startup and operations/maintenance plan for the equipment.

Confidential Petroleum Refinery, Minnesota, Alternatives Analysis for Removal of Mercury. Acted as technical lead and project manager for an alternatives analysis for removal of mercury from refinery wastewater effluent, pilot testing of ultrafiltration and microfiltration membranes, and evaluation of alternatives for management of membrane backwash. Acted as technical lead on applied statistics/data mining project to identify root causes for variations in mercury concentrations in wastewater effluent. This resulted in identification of mercury contamination in acid used for pH adjustment as a major mercury source to wastewater.

Confidential Petroleum Refinery, Minnesota, Toxicity Reduction Evaluation. Acted as technical lead for testing and statistics/data mining project to identify causes for intermittent whole effluent toxicity in wastewater effluent. Assisted with optimization of Dissolve Air Floatation (DAF) process to reduce toxicity and improve mercury removal in wastewater effluent. Assembled and convened a workshop with national toxicity experts to develop a response plan for intermittent toxicity at the refinery.

Confidential Petroleum Refinery, Alaska, Removal of Arsenic and Molybdenum in Refinery Wastewater Effluent. Acted as technical lead and project manager for projects to troubleshoot/ optimize removal of arsenic and molybdenum in refinery wastewater effluent. Used bench testing and chemical modeling to develop new process setpoints for the system and bring metals concentrations into compliance.

Confidential Petroleum Refinery, Utah, Technical Evaluation of Possible Causes for Chlorine Residual Issues. Provided a technical evaluation of possible causes for chlorine residual issues at the City wastewater treatment plant relative to refinery wastewater effluent quality.

Confidential Ethanol Plant, Iowa, Toxicity Reduction Evaluation. Conducted a toxicity reduction evaluation (TRE) on cooling tower blowdown, developed new equipment and control recommendations to improve control over residual chlorine/bisulfite in cooling water blowdown.

Water/Wastewater Treatment in the Power Industry

Confidential Coal Power Generation Facility, Montana, CCR Groundwater Remediation. Served as engineer of record for the design of three freshwater flushing systems to facilitate flushing and subsequent capture of CCR groundwater constituents (sulfate and boron) from beneath former CCR disposal impoundments. The design included filtration, chlorination, and dechlorination of river water prior to distribution of the water to individual injection wells throughout the site. Overall, the systems included over 169 individual injection wells; over 25 miles of distribution piping; and associated pumps, controls, and instrumentation to achieve the desired injection flow rates and pressures at the injection wells.

Confidential Coal Power Plant, Minnesota, Pilot Testing/Alternatives Analysis to Dewater Legacy Ash Pond. Acted as technical lead for pilot testing/alternatives analysis to dewater a legacy ash pond (~700 MG). Alternatives included treatment for NPDES discharge and treatment for reuse in new air pollution control equipment. Water quality issues included boron, sulfate, magnesium, and selenium. Technologies included reverse osmosis, nanofiltration, lime precipitation, ettringite precipitation, evaporators, and crystallizers. Evaluated geochemical stability of treatment residuals.

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Confidential Power Plant, Minnesota, Process Modeling to Assist with pH Control Strategy and Water Quality Estimates. Acted as technical lead for GoldSim process modeling to assist with pH control strategy and water quality estimates to support permitting for a natural gas conversion to an existing coal-fired power plant.

Water/Wastewater Treatment in Manufacturing

Confidential Chemical Manufacturers, Arizona, Water/Wastewater Engineering. Served as technical lead and project manager for water and wastewater conveyance/treatment infrastructure for two greenfield chemical manufacturing facilities that supply the semiconductor industry. Work included developing water and material balances for the plants, developing industrial wastewater and sanitary sewer design bases, and assisting with bidding and procurement of wastewater treatment equipment. Also supported industrial stormwater management design and fire water/potable water distribution system design. Coordinated basic engineering activities and deliverables with permitting needs for the project.

Confidential Lithium Battery Manufacturer, North Carolina, Wastewater Pretreatment Permitting. Acted as wastewater process lead on a multidisciplinary project to assist the client with wastewater pretreatment permitting for a proposed lithium battery manufacturing facility. Work included collaboration with client subject matter experts to evaluate the proposed manufacturing process and contributions of water and materials to the wastewater discharge. Worked with teammates to evaluate the applicability of EPA categorical requirements to the proposed manufacturing processes. The project resulted in a determination that categorical requirements did not apply to the proposed processes, and this determination was validated by the local regulators and regional EPA staff. Later, served as process wastewater lead to assist the client in responding to EPA findings during the issuance of a premanufacturing notice for imported battery materials. Assisted in building the case to allow discharge of wastewater from the manufacturing process to sewer per the previously established determination.

Confidential Industrial Gas Manufacturer, Texas, Industrial Discharge Diffuser Design. Served as engineer of record for design of a wastewater diffuser to facilitate discharge and mixing of industrial stormwater and condensates from an industrial gas facility into Galveston Bay. Worked with teammates to obtain design data from mixing model simulations and wave force simulations. Developed the piping and installation drawings for submittal to the Texas Commission on Environmental Quality (TCEQ) and subsequent construction by the client.

Confidential Ion Exchange Resin Supplier, Minnesota, Wastewater Pretreatment Upgrades and Stipulation Agreement Compliance. Served as project director and engineer of record for the evaluation of alternatives, design, and commissioning of wastewater pretreatment upgrades to remove copper and zinc from ion exchange regeneration waste. Assisted client in negotiating the terms of a stipulation agreement with the MPCA and developed the required documents and procedures for submittal to the MPCA to comply with the terms of the agreement.

Confidential Flavor and Fragrance Manufacturer, New Jersey, Wastewater Process Selection. Acted as technical lead and project manager for a wastewater treatment system upgrade process to accommodate manufacturing expansion at the plant. Processes included dissolved air floatation,

activated sludge, and nutrient removal. The project also included evaluation of a separate package plant to accommodate sanitary wastewater from the facility.

Confidential Flavor and Fragrance Manufacturer, Illinois, Wastewater Treatment Process Design. Acted as technical lead for process development and equipment selection/design to remove color and shellac from manufacturing wastewater to address passthrough and fouling issues raised by the POTW. Oversaw a bench testing program that identified pH adjustment and filtration methodologies to precipitate and remove shellac solids from clean in place waste. Identified chemical oxidation methodologies to remove color from clean in place waste. Developed a conceptual design for a skid-based clean-in-place treatment system. Worked with the client to establish equipment supply scope.

Confidential Bathroom Tissue Manufacturer, North Carolina, Wastewater Treatment Process Evaluation. Acted as technical lead for an evaluation of wastewater treatment performance and chemical management practices at a bathroom tissue manufacturing plant. Evaluated alleged passthrough and upset events from the POTW receiving the facility's waste and reviewed historical wastewater and chemical management information to evaluate root causes. Helped develop standard operating procedures for chemical handling and wastewater management for the plant.

Confidential Bath Products Retailer, Multiple US Locations, Wastewater Treatment Equipment Specification and Regulatory Negotiations. Acted as technical lead to develop a fleet-wide compliance strategy for a bath products retailer for in-store production of soap and other bath products. Evaluated applicability of EPA categorical requirements, led pilot testing, and developed a standardized grease interceptor specification for the stores. Developed and supported implementation of production procedures to limit potential for discharge of oils and caustic from the stores. Led negotiations with municipalities to obtain regulatory concurrence with store procedures.

Confidential Screen Printer, North Carolina, Wastewater Treatment Process Evaluation. Acted as technical lead for an evaluation of chemical use and wastewater management for a screen printing plant. Conducted mass and water balance calculations for the equipment to estimate concentrations of chemicals in the facility's wastewater. Compared concentrations to toxicity thresholds and local limits to evaluate the potential for the POTW to require an industrial discharge permit for the facility.

Confidential Industrial Laundry Facility, Georgia, Bench/Pilot Testing and Alternatives Analysis for BOD and Aluminum. Acted as technical lead and project manager for bench/pilot testing and alternatives analysis to achieve compliance with BOD and aluminum pre-treatment requirements in laundry wastewater.

Confidential Industrial Laundry Facility, Florida, Bench/Pilot Testing and Alternatives Analysis for Lead. Acted as technical lead and project manager for bench/pilot testing and alternatives analysis to achieve compliance with lead pre-treatment requirements in laundry wastewater.

Confidential Concrete Manufacturing Facility, Minnesota, Design, Construction, and Operation of Stormwater Treatment System. Acted as technical lead and project manager for design, construction, and operation of a stormwater treatment system to adjust pH and remove cement fines from yard runoff.

Confidential Electroplating Facility, Minnesota, Optimization of Pre-Treatment Process. Acted as technical lead and project manager for optimization of pre-treatment process to comply with zinc pre-treatment limits.

Confidential Steel Mill, Minnesota, Wastewater Treatment System Upgrades. Acted as technical lead on upgrades to wastewater treatment system to remove mill scale and oil and grease associated with a new mill upgrade.

Confidential Secondary Lead Smelter, Missouri, Toxicity Reduction Evaluation. Assisted with toxicity reduction evaluation in wastewater discharge and provided recommendations for treatment process modifications.

Confidential Fertilizer Manufacturer, Iowa, Review of Wastewater Treatment Process Design and Operation. Acted as technical lead for cold-eye review of wastewater treatment process design and operation. Provided operational recommendations for ammonia, BOD, and oil and grease removal processes, including DAF, breakpoint chlorination, and sequencing batch reactor.

Water Reuse/Waste Minimization

Confidential Refinery, North Dakota, Water and Wastewater Treatment Process Design. Performed senior review on water and wastewater treatment process design for a greenfield diesel refinery. Refinery utilizes municipal wastewater effluent for source water and returns pre-treated wastewater to the POTW for treatment. Project involved selection of disinfection technologies and standards based on anticipated use, and accounting for seasonal variations in nitrification within the POTW.

Confidential Concrete Manufacturing Facility, Minnesota, Selection and Implementation of Rotary Vacuum Drum Equipment. Acted as technical lead for selection and implementation of rotary vacuum drum equipment to facilitate reuse of form wash water within the manufacturing facility. Work included evaluation of scaling potential (spray nozzle fouling) and buildup of alkalinity (worker exposure) in reclaimed process water.

Confidential Metal Finishing Facility, South Dakota, Evaluation of Equipment Options. Evaluated equipment options, including crossflow ultrafiltration membranes, to recover water from oily waste for reuse in the manufacturing process.

Confidential Electronics Manufacturer, South Carolina, System to Reclaim Spent Perchlorate Etching Solution. Acted as technical lead and project manager for design, installation, and commissioning of a system to reclaim spent perchlorate etching solution for reuse in the process. Project resulted in reduction of hazardous waste for off-site disposal, as well as a significant savings in reagent purchasing costs.

Shakopee Mdewakanton Sioux Community, Minnesota, Evaluation of Geochemical Risks. Acted as technical lead for an evaluation of geochemical risks associated with the introduction of highly-treated municipal wastewater effluent into the unsaturated zone above the drinking water aquifer. Work included batch equilibration and sediment column studies to evaluate possible mobilization of metals, and aquifer plugging.

Remediation

Confidential Refinery, Alaska, Sulfolane Removal from Groundwater. Acted as technical lead and project manager on a variety of projects associated with the selection, design, implementation, and operation of remedies for removing sulfolane from groundwater. Activities included construction and operation of activated carbon groundwater treatment systems, optimization of pre-treatment works to balance sulfolane removal with O&M effort, and development and execution of a successful in-situ air sparge pilot.

Former Cement Kiln Site, Michigan, Groundwater Chemistry for Remediation of Groundwater and Surface Water Impacts of Leachate. Acted as technical lead for groundwater chemistry for the remediation of groundwater and surface water impacts of leachate from cement kiln dust piles. Developed conceptual model for leachate generation and mixing, as well as the fate of alkalinity and mercury within the leachate. Developed a tool for evaluating extents of leachate groundwater impacts based on water quality "fingerprint."

Metal Processor, Michigan, In-Situ Treatment of Copper and Ammonia-Impacted Groundwater. Acted as technical lead for in-situ treatment of copper and ammonia-impacted groundwater. Developed design, operations, and sampling plan for an air sparge system to remediate the plume.

Former Fuels Terminal, Minnesota, Design-Build Remediation. Acted as construction manager for a design-build remediation project incorporating total fluids capture, soil vapor extraction, and a gate-and-funnel system with air sparging for toluene.

Confidential Refinery, Minnesota, Remediation and Closure of Former Land Treatment Unit. Acted as project manager for remediation and closure of a former land treatment unit within the refinery. Project entailed biological treatment of petroleum-impacted soil, as well as stockpiling of treated soil within the facility footprint.

Oil Sands Processing Client, Canada, Evaluation of Quantity and Type of Biologically-Generated Gases. Served as technical contributor on a joint project with Deltares to evaluate the quantity and type of biologically-generated gases from consolidated tailings (CT) treated with gypsum. Project involved laboratory microcosms equipped with gas detection for methane, CO_2, and H_2S.

Oil Sand Processing Client, Canada, Lake-Making Project. Served as technical contributor on a lake-making project, with the objective of converting oil sand tailings basins into natural lakes.

Publications and Presentations

Anurag, H., Hersey, D., and DeJournett, T. 2025. "Probabilistic Modeling to Optimize Diversion of Infiltration Water from High-Altitude Mine Workings using GoldSim." Society for Mining, Metallurgy, and Exploration (SME) Minnesota Conference, Virginia, Minnesota, April 7-9, 2025.

Chun, C.L., Larson, B., DeJournett, T., Washburn, S., and Kolka, T. 2025. "Toward and Scalable Pilot System: Design Considerations for a Novel Electrode-Based Sulfate Bioreactor." Society for Mining, Metallurgy, and Exploration (SME) Minnesota Conference, Virginia, Minnesota, April 7-9, 2025.

Washburn, S., DeJournett, T., and Drevnik, P. 2025 "Mercury in Northern Minnesota Wetlands: An Update on the Status of Science Regarding Mercury Cycling and Current Knowledge Gaps." Society for Mining, Metallurgy, and Exploration (SME) Minnesota Conference, Virginia, Minnesota, April 7-9, 2025.

Sabuda, M., Rosenfeld, C., DeJournett, T., Schroeder, K., Wuolo-Journey, K., and Santelli, C. "Fungal Bioremediation of Selenium-Contaminated Industrial and Municipal Wastewaters." Frontiers in Microbiology 11:2105.

DeJournett, T.D; Arnold, W.A.; LaPara, T.M., 2007. "The Characterization and Quantification of the Methanotrophic Bacterial Populations in Constructed Wetland Sediments using PCR Targeting 16S rRNA Gene Fragments." Applied Soil Ecology 35:3, 648-659.

"Removal of cis-1,2-dichloroethylene from groundwater using a restored wetland." 2006. PhD thesis. University of Minnesota.

DeJournett, T.D., Fritsch, J.M., McNeill, K., and Arnold, W.A. 2005. "Preparation of 14C2-cis-1,2-dichloroethylene from 14C2-trichloroethylene using a cobalt porphyrin catalyst." Journal of Labeled Compounds and Radiopharmaceuticals 48:5, 353-357.

"Combined microbial-Fe(0) system to treat nitrate-contaminated groundwater." 1999. Fifth International Symposium on In Situ and On-Site Bioremediation, San Diego, California.

“Predictive Water Management using GoldSim for Mining Operations under a Changing Climate.” Anurag, H., DeJournett, T., and Standish, J., Society for Mining, Metallurgy, and Exploration (SME) Minnesota Conference, Duluth, Minnesota, April 15-17, 2024.

“Groundwater/Surface Water Interface – Emerging Regulatory Challenges and New Solutions.” DeJournett, T. and Olson, K., Society for Mining, Metallurgy, and Exploration (SME) Minnesota Conference, Virginia, Minnesota, April 17-19, 2023.

“Groundwater/Surface Water Interface – Emerging Regulatory Challenges and New Solutions for the Power Industry.” DeJournett, T., Olson, K., Kresic, N., and Hayes, M. The World of Coal Ash, Covington, Kentucky, May 16-19, 2022.

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