

Daniel Graf

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EDUCATION

M.S. Energy and Earth Resources, Portfolio in Food-Energy-Water Systems Expected May 2023

The University of Texas at Austin

Selected Coursework:

- Systems Modeling, Energy Technology and Policy, Energy Finance, Decision Engineering, Physical Hydrology, Python for Geoscience Research

B.S. Geological Engineering and Geology & Geophysics, Environmental Studies Certificate May 2017

University of Wisconsin-Madison

Selected Coursework:

- Hydrogeology, Groundwater Flow Modeling, Water Chemistry, Lake and River Rehabilitation, Fluid Mechanics, Applied Geophysics

Continuing Education

- Model Calibration and Uncertainty Analysis with PEST and PEST++ Fall 2019
 - One week course taught by John Doherty covering theory and applications of PEST
- Code in Place, offered online by Stanford University April-May 2020
 - 5-week introductory online Python programming course based on material from the first half of Stanford's introductory programming course, CS106A
 - Offered by Stanford during COVID-19 pandemic, with 10,000 global students and 900 volunteer teachers participating from around the world

Passed Civil **FE Exam** May 2017

EXPERIENCE

Life Cycle Assessment (LCA) Intern May 2022 – August 2022

Benchmark Minerals Intelligence, London, GB

- Developed gate-to-gate LCA of natural graphite production for use in lithium-ion batteries (LIBs) using data from industry specialists, peer-reviewed literature, and the Ecoinvent database
- Updated existing Benchmark cradle-to-gate LCA of synthetic graphite production for use in LIBs using data from peer-reviewed literature and the Ecoinvent database
- Wrote corresponding reports summarizing key findings, limitations, and avenues for future work
- Collaborated with internationally based colleagues as member of the ESG team

Graduate Research Assistant August 2021 - Present

Bureau of Economic Geology, Austin, TX

- Member of Comparing Electricity Options (CEO) team, a data-driven study of the environmental impacts associated with the supply chain and lifecycle of main electricity options (CCGT, solar, wind and battery storage)
- Personal focus is using the InVEST model suite to harmonize ecosystem services into life cycle impacts of utility-scale electricity generation options

Project Geological Engineer/Hydrogeologist November 2018 – June 2021

ICASS SpA, Santiago, Chile

- Provided technical analysis, field support and corresponding reports for a wide range of water resources related projects for clients both in the private and public sector throughout Chile

- Developed site characterization, conceptual and numerical model studies, and remedial action plans approved by the national environmental authority (Servicio de Evaluación Ambiental (SEA)) in the context of Environmental Impact Assessments (Evaluación de Impacto Ambiental (EIA))
- Performed necessary field work duties, including collecting rock samples, performing water level measurements, and measuring stream flow
- Collaborated with multidisciplinary, multicultural teams across various organizations in Spanish daily

Hydrogeologist/Project Manager

July 2017 – December 2017

Wisconsin Department of Natural Resources (WDNR), Fitchburg, WI

- Administered geologic and hydrogeologic oversight for investigation and remediation projects within the Remediation and Redevelopment (RR) program
- Provided technical expertise and support to responsible parties, consultants, RR and other DNR program regional staff, members of the public, and other agencies
- Managed 45 different sites with environmental releases from Above-Ground (AST)/Underground (UST) petroleum storage tanks as well as industrial chemical operations with a range of contaminants
- Maintained up-to-date knowledge and understanding of Wisconsin state statutes and administrative codes, in particular the petroleum environmental cleanup fund award (PECFA) program

Undergraduate Research Assistant

May 2016 – May 2017

Geosynthetic Clay Liner Research Group, University of Wisconsin-Madison

- Maintained, measured, and performed data entry for 23 falling head permeameter tests
- Performed chemical analysis of permeameter effluent, including EC, pH, and ICP-MS
- Helped develop experimental procedures and completed QA/QC of data

SELECTED PROJECTS

Strategic Water Management Plan, Maipo Basin, Chile, ICASS SpA

2020 – 2021

- Part of multidisciplinary, multicultural team that worked with the national water authority to develop a strategic water management plan for the Maipo Basin (~3.7 million acres), which includes the capital city of Santiago, home to nearly 8 million people
- Analyzed existing information and infrastructure to perform overall characterization and diagnostic of the basin
- Integrated data from a wide range of sources to develop a calibrated groundwater flow model in MODFLOW
- Worked with team to link MODFLOW model with a concurrently developed WEAP model to produce a tightly coupled integrated surface water/groundwater model
- Used integrated model to perform forecasting simulations under various climate change and water management scenarios
- Engaged in local stakeholder meetings as well as correspondence with the water authority to improve user participation and input in the project

Baseline Geochemical and Hydrogeological Study, Fenix Gold, Copiapo, Chile, ICASS SpA

2020

- Conducted baseline geochemical and hydrogeological study as part of an EIA for a proposed gold mine in the north of Chile
- Compiled, processed, and analyzed data from a variety of sources to develop a site conceptual model
- Using the conceptual model, prepared a vadose zone model in HYDRUS-1D to analyze the potential for seepage from the mine's proposed waste rock pile

- Collaborated with internationally based team members to link developed HYDRUS model with PHREEQC to perform hydrogeochemical analysis of potential seepage

SKILLS

Computer Skills

- openLCA, SimaPro, MODFLOW, HYDRUS-1D, Groundwater Vistas, Python, @Risk, Visual Modflow, QGIS, ArcGIS,

Instrumentation/Laboratory Techniques

- Water level measuring, rock sampling, stream flow measuring, differential leveling, Total Station surveying, ICP analysis, falling head permeameter test, constant flow pump test

Languages

- Professional fluency in Spanish

AWARDS

- Energy and Earth Resources Fellowship September 2021 - Present

INTERESTS

- Volunteering: volunteer for Urban Roots, a nonprofit, farm-based youth leadership organization growing organic produce for the Austin, TX community
- Music: was drummer in Fin Zipper, a funk/psychedelic rock band
- Hiking, climbing, fishing, snowboarding
- Travel: went on 5 month backpacking trip through South America in 2018