

D. MACKENZIE SORENSEN

EXPERIENCE:

OCTOBER 2020-PRESENT

Senior Mineralogist Rio Tinto Kennecott, Salt Lake City, Utah

- Ownership of Mineralogy database creation
 - Taking the data from an excel spreadsheet to SQL and Power BI
- Ownership of gold ore characterization
 - Assessing and communicating assumptions based on geologic principles as the ore changes to maximize recovery
- Ownership of researching and developing new software implementation for mineralogical analysis
- Overseeing incorporation of mineralogy data into Palantir software for use across the business and incorporation with mine and mill plans
- Development of tellurium model and method detection
- Ownership of deleterious element modeling, and mineralogical modeling
- Supervising and training 1 direct report

JULY2019- OCTOBER 2020

Metallurgical Engineer Rio Tinto Kennecott, Salt Lake City, Utah

- Initiator of Stockpile Modeling Project
- Ownership of Gold reagent test work, a 32-million-dollar project managing 7 vendors to improve gold recovery
 - Project includes project management, data management, stakeholder engagement, and met modeling
- Sampling for ore characterization, and communication across the value stream of metallurgical concerns
- Ownership of NS1162 project, a dispersant to assist with clay ores
- Decreasing lime usage, \$500k/ year savings, by conducting pH trials and engaging with operational personnel

MAY 2017-JULY 2019

Graduate Geologist Rio Tinto Kennecott, Salt Lake City, Utah

- Ownership of incorporating UAVs into the mapping process to improve safety and data collection
- Working with the Mine Survey team for 8 months
 - Improved and wrote the SOPs and SWIs for the survey machinery, including the Maptek Scanner and the data incorporation with MineSight
 - Trained 4 new employees
- Updated and worked on the long-term fault model
- Updated and created lithology models, geomet models, and ore zones
- Assisted in critical safety protocol, including developing a process to safety outline historical underground workings
- Completed GeoTech Fall of Ground reports on unsafe regions of the pit
- Volunteered with STEM Fest and provided numerous tour opportunities for both internal and external groups

AUGUST 2016- May 2017

Contract Geologist Tetra Tech, Salt Lake City, Utah

- Assisted the mapping/modeling group with mapping the Bingham Canyon Pit
- Updated the model in MineSight.
- Other tasks include RC chip logging, creating presentations on the geology, and reviewing old maps.

SCHOOL YEARS 2014-2016

Research Assistant/ Teaching Assistant University of Texas at Austin

- Taught classes on ore deposits, introduction to geology, igneous/metamorphic petrography, and geology for non-science majors
 - Ownership of the creation of labs, tests, and curriculum with Professor's approval
- Thesis on the origin and formation of a gold deposit in southeastern Switzerland. Method including mapping, core logging, U/Pb dating, and sulfur isotopes to constrain the origin of sulfur in the system. It is primarily greenfield exploration based.

2016 SUMMER

Geology Intern Freeport McMoRan Internship, Oro Valley, AZ

- MineSight internship assisting the Oro Valley office with a brownfield exploration project. I began building a model from digitizing 40 historical maps to creating 6 cross sections and 8 long-sections to create a working model of the area.

2015 SUMMER

Geology Intern Rio Tinto Internship, Salt Lake City, Utah

- Bingham Canyon Mine summer internship. Pit mapping of the Bingham Canyon pit as well as a study of the accuracy of a handheld XRF in determining ore zones.

2014 SUMMER

Geology Intern Barrick Gold Corporation Internship, Cortez Mine Site, Crescent Valley, NV

- Internship with Barrick Gold Exploration Inc., assigned to the team on the Goldrush discovery at Cortez in Eureka County, NV. Major project: Detailed mapping of roadcuts, outcrops and drill pad exposures at 1:25 resulting in a compiled interpretive map of northern Goldrush surface area defining structures and stratigraphic relations in structurally complex terrain.

EDUCATION

M.S. Geology, University of Texas, Austin

Under direction of Dr. R. Kyle

B.S. Geology, University of Georgia

Senior Thesis under the direction of Dr. SE Walker

Class of 2021 Emerging Leaders Alliance

Sponsored by SME

Project Management Training

Utah Valley University

Six Sigma Training

Utah Valley University

STEERCOs

Founding member and Steerco Committee member for Rio Tinto's GeoForum

- Group dedicated to improving employee engagement through internal panel sessions, conferences, communications, mentorships, and knowledge shares

PUBLICATIONS

(2019- Present, for full list available in CV)

AEMA 2019 Sorensen, D.M. "Integration of Mine Geology with Geotechnical Engineering, Metallurgy, and Mine Planning; How Knowledge of the Rocks can Add Value Across the Value Chain"

SME 2019 Sorensen, D.M, Vetz, N. "THE USE OF 3D PHOTOGRAMMETRY THROUGH UNMANNED AERIAL VEHICLES (UAVS) TO MAP GEOLOGY AT THE BINGHAM CANYON MINE"

SME 2021 Baar, J.L, Sorensen, D.M, "Utilizing your Site Geologists: Knowing When to Ask for Help"

SME 2022 Sorensen, D.M. "Special Needs Parenting and the Working Mom; a Complicated Pregnancy and Child While Maintaining a Career in Mining."

SME 2022 Sorensen, D.M. "Practical Mineralogy: Solving Geometallurgical Concerns with Fast, Intuitive Mineralogy"

SME 2022 Sorensen, D.M, Et. Al "Building a Global Community: The Creation of the Global GeoForum"

COMMUNITY ENGAGEMENT

Mentor with the South Valley Chamber of Commerce

- Encouraging highschool girls to pursue their passions, and providing guidance from a STEM field

PROFESSIONAL AFFILIATIONS:

Society of Economic Geologists Geological Society of America American Association of Professional Geologists
 Society of Mining and Metallurgy Engineers AusIMM

HONORS AND AWARDS:

2009-2013 Sigma Alpha Lambda Honor Society
 2009-2013 HOPE Scholarship Recipient
 2013 GSA Travel Grant, national meeting, Denver, Colorado
 2015 SEG Graduate Student Fellowship Award
 2016 Graduate Student Assembly Award

SPECIAL SKILLS:

Proficient in Microsoft PowerPoint, Excel, and Word.
 Intermediate in ArcGIS Software Intermediate in AutoCad Intermediate in MineSight Modeling Software
 Basic skills in Vulcan Modeling Software Basic skills in LeapFrog Modeling Software Basic SQL