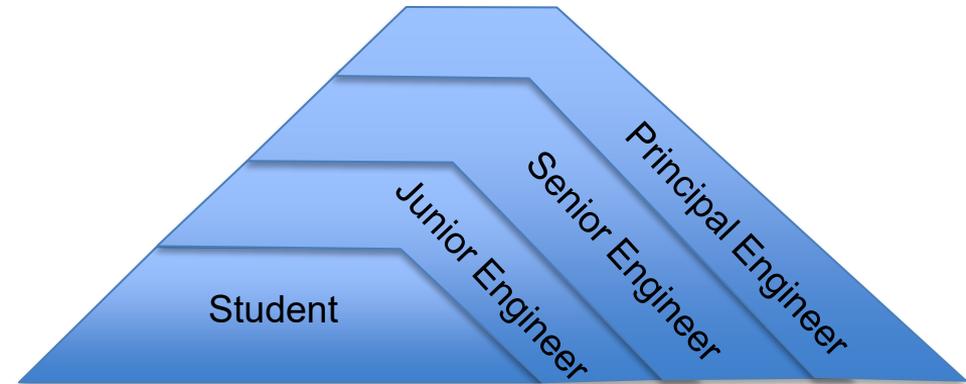


# Building Foundations

Early-Career Success in Tailings Engineering through Practical Experience and Mentorship



# Who We Are: Young Rock Stars of Residue

## Kendall Monley

Civil engineering  
undergrad (wanted to do  
structural engineering)

Geotechnical  
internship

Masters' degree  
in Geotechnical  
engineering

Started working  
for WSP in  
March 2024



## Esther Clement

Started in mechanical  
engineering/ switched  
to civil

Geotechnical  
internship

Geotechnical  
graduate  
engineering

Started  
working for SRK  
in August 2023

# Introduction

## Purpose

- Share early career insights in tailings engineering (aiming to be anecdotal not technical)
- Highlight experiences that shaped our growth as engineers

## Goals & Objectives

- Discuss pathways to successful engineer-of-record (EOR) development
- Spark discussion on how to retain young engineers
- Share the importance of mentorship

## Target Audience

- Engineers of all levels

# Induction into the cult: Early Exposure matters



- CSU / other university geotechnical programs are dedicated to exposing undergrads to geoenvironmental engineering with tailings focus
- True introduction to geotechnical engineering came junior year. Major takeaways:
  - One size does not fit all
  - Significant field involvement
  - Real-world applied learning opportunities





# Introducing Students to Tailings Context/Impact

*“As long as society uses metals, mines must store tailings. Facilities shape cost, risk, and public perception—this is where our work matters.”*

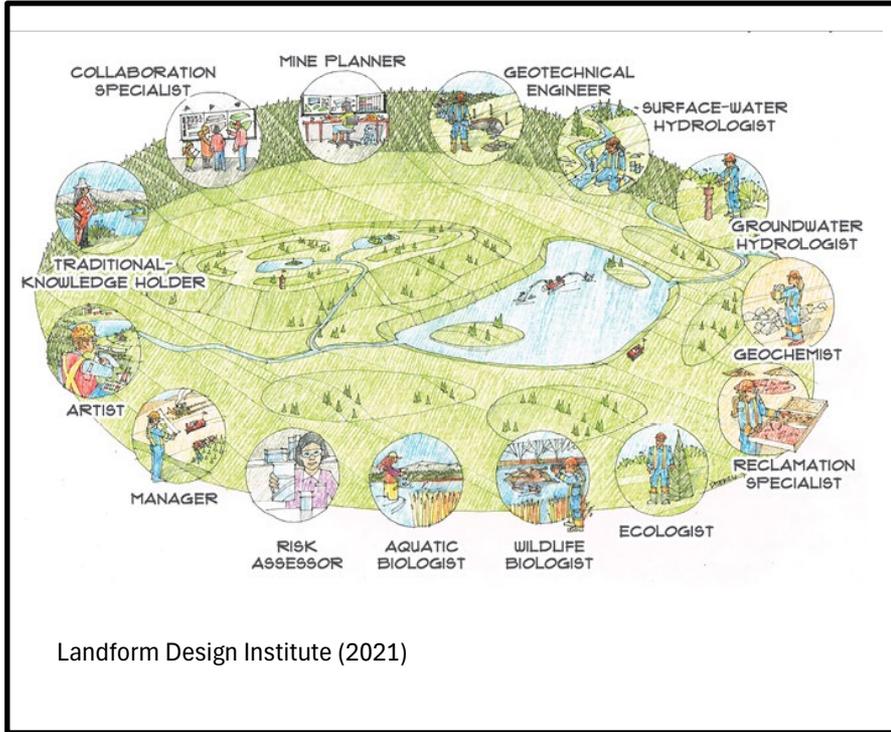


Copyright © Dillon Marsh

FIGURE 1.2 Artistic rendering of copper production from (A) the Palabora and (B) West O'okiep copper mines

Source: *Tailings Management Handbook* , 2021

# Introduction to Industry



Logos of industry partners and clients:

- BARR
- Geosyntec consultants
- wsp
- F.M. FREEPORT-McMoRAN
- GOLDER
- KP
- srk consulting
- Newmont
- Rio Tinto
- BHP
- Stantec
- HATCH
- VALE
- CONETEC
- Klohn Crippen Berger

# Fieldwork Experiences

# Overview of Key Fieldwork Experience

## Geotechnical Drilling

Drilling is drilling is drilling

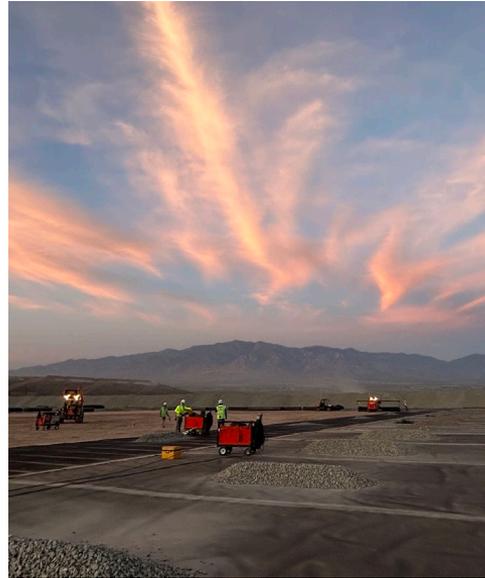


## Construction Quality Assurance

Earthworks deployment

Liner installation

General monitoring



## Instrumentation Installation

Remote monitoring stations for

vibrating wire piezometers and

weather station



# Overview of Key Fieldwork Experience

## Geotechnical Drilling

Foundation/embankment characterization  
Monitoring well installation



## Construction Quality Assurance

Clay core dam raise on active TSF  
Cover construction on Closed TSF

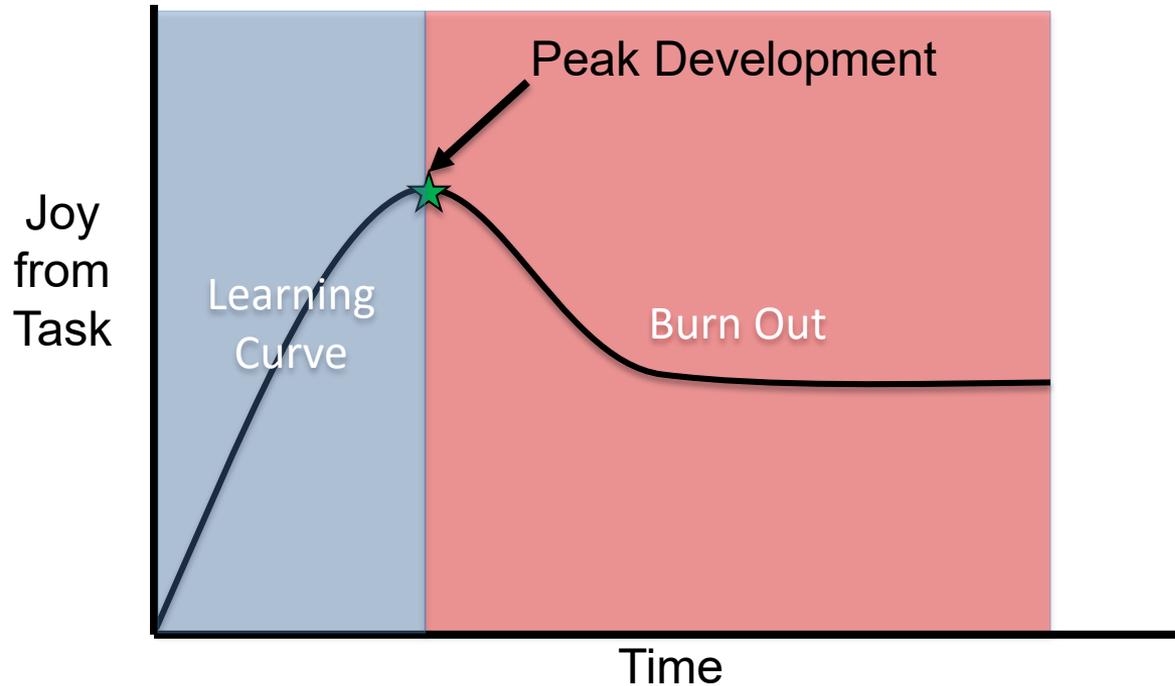


## Dam Safety Inspection site visits



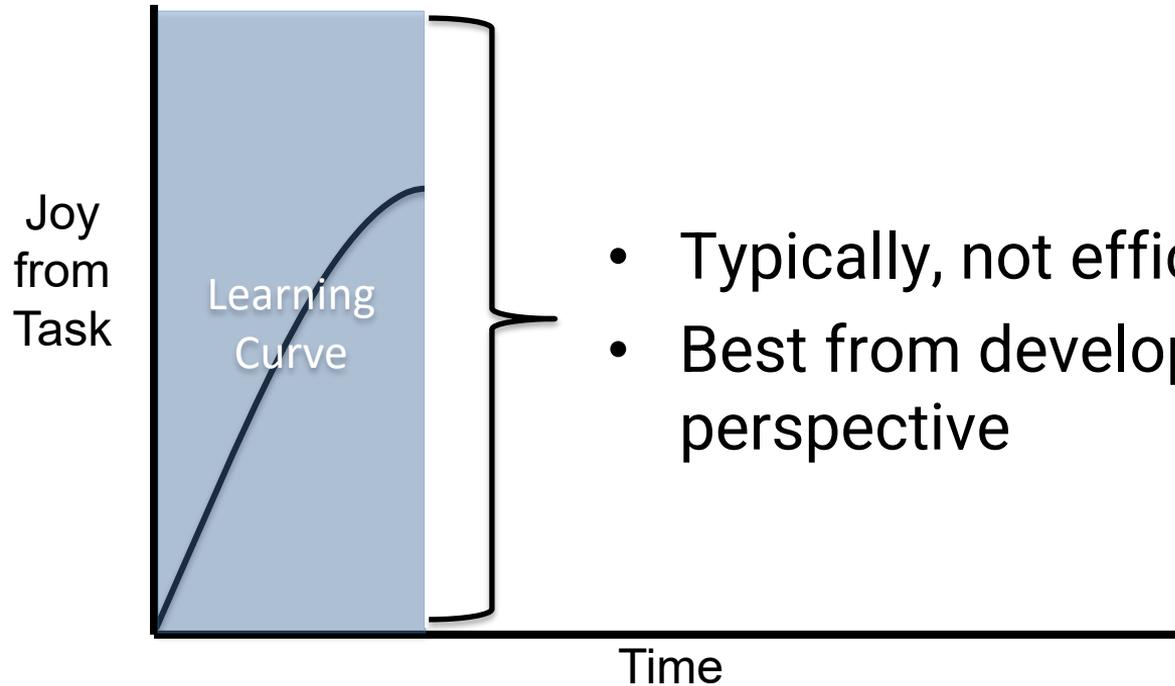


# Avoiding Burn Out in Young Engineers



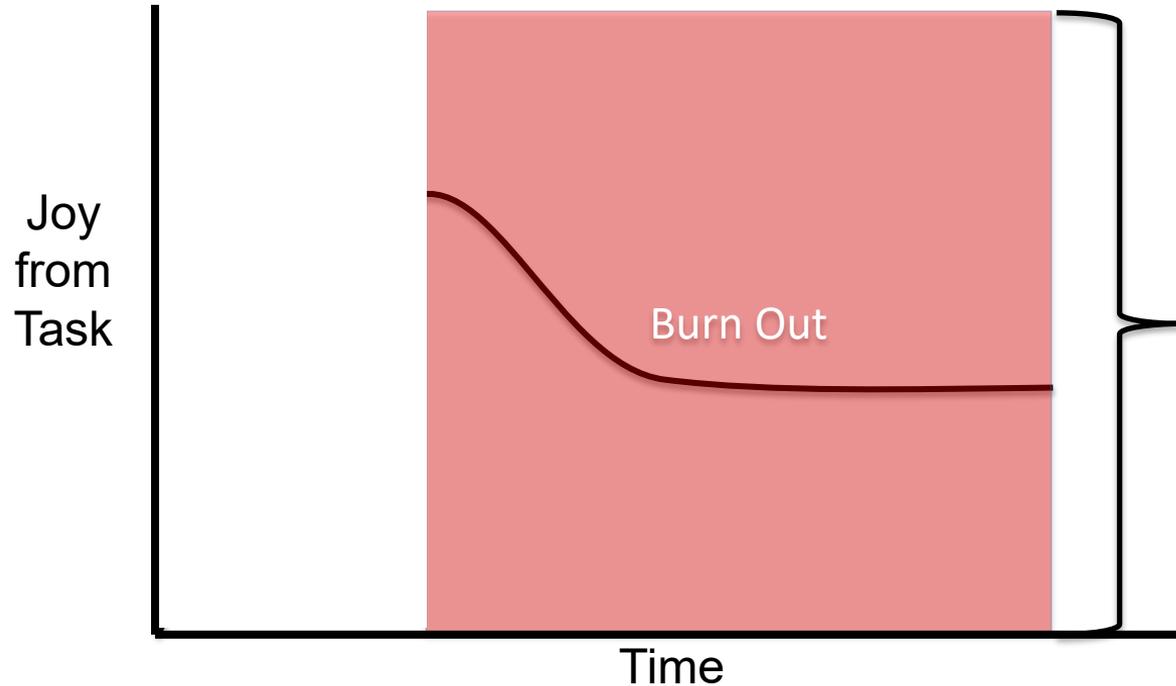


# Avoiding Burn Out in Young Engineers





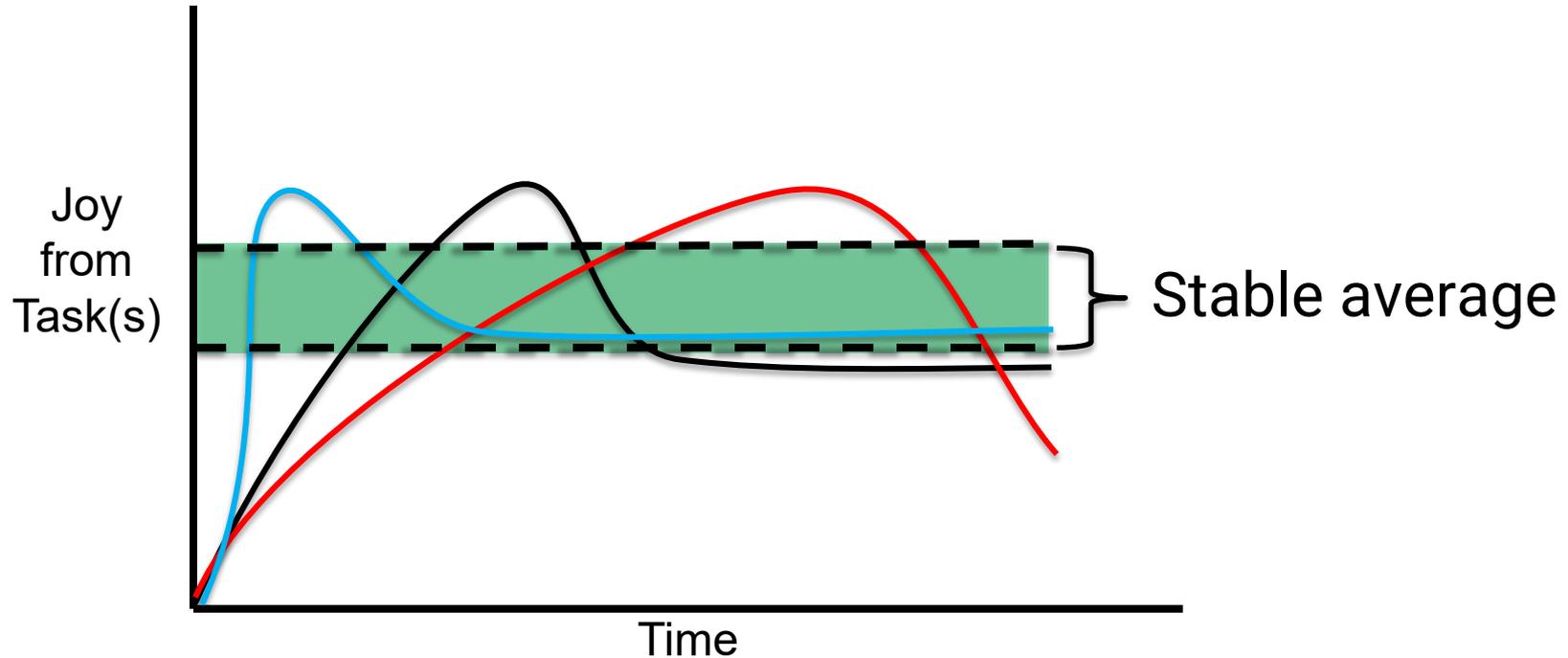
# Avoiding Burn Out in Young Engineers



- Most efficient at task
- Best from business perspective

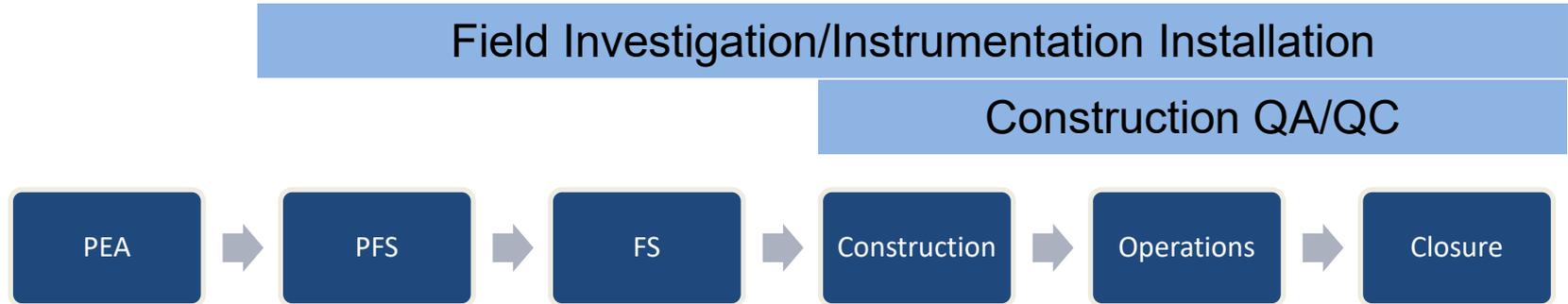


# Avoiding Burn Out in Young Engineers



# Development Opportunities Young Engineers

- Ultimate experience for developing engineer is experiencing the lifecycle of the project:



# Mentoring and In-Person Interactions

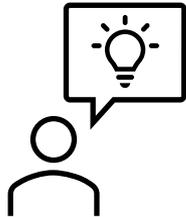
# Mentoring and In-Person Interactions

- Informal office interactions and learning moments
  - In person vs remote work environments
  - Organic learning
- Building relationships and strengthening team bonds
  - Functional work flows when you are comfortable with your coworkers
- The role of mentorship and interpersonal support



# Mentoring and In-Person Interactions

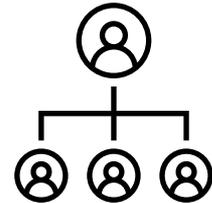
Participation from junior staff in client conversations/meetings



Major part of EOR role is proper communication with client



Mirroring behavior of how experienced staff interact with clients



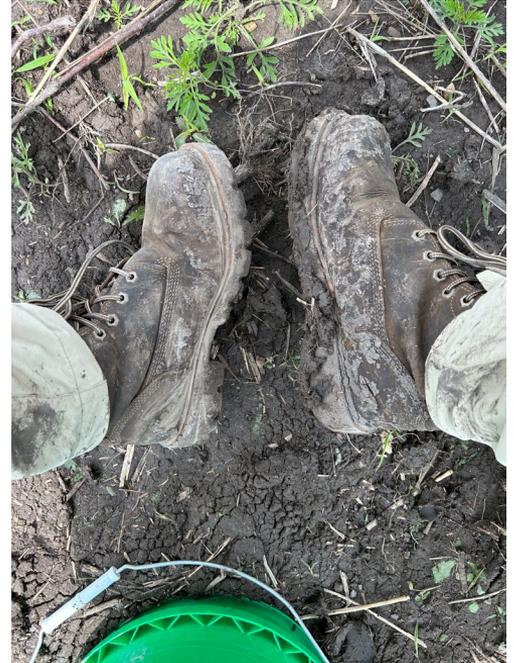
## Appetite for EOR Role

- High risk career
- Liability associated with role
- Highly demanding (always on call)
- Requires strict adherence to professional ethics and attention to detail.

# Lessons Learned & Discussion

# Lessons Learned & Discussion

- Ask for opportunities - ‘Squeaky wheel gets the grease’
- Fieldwork is irreplaceable
- Intentional exposure to decision making
- In-person interactions create organic growth
- Mentoring is critical for developing entry-level engineers



P.S. Don't be afraid to get your boots dirty

# Thank You