

# Rumble in the Jungle



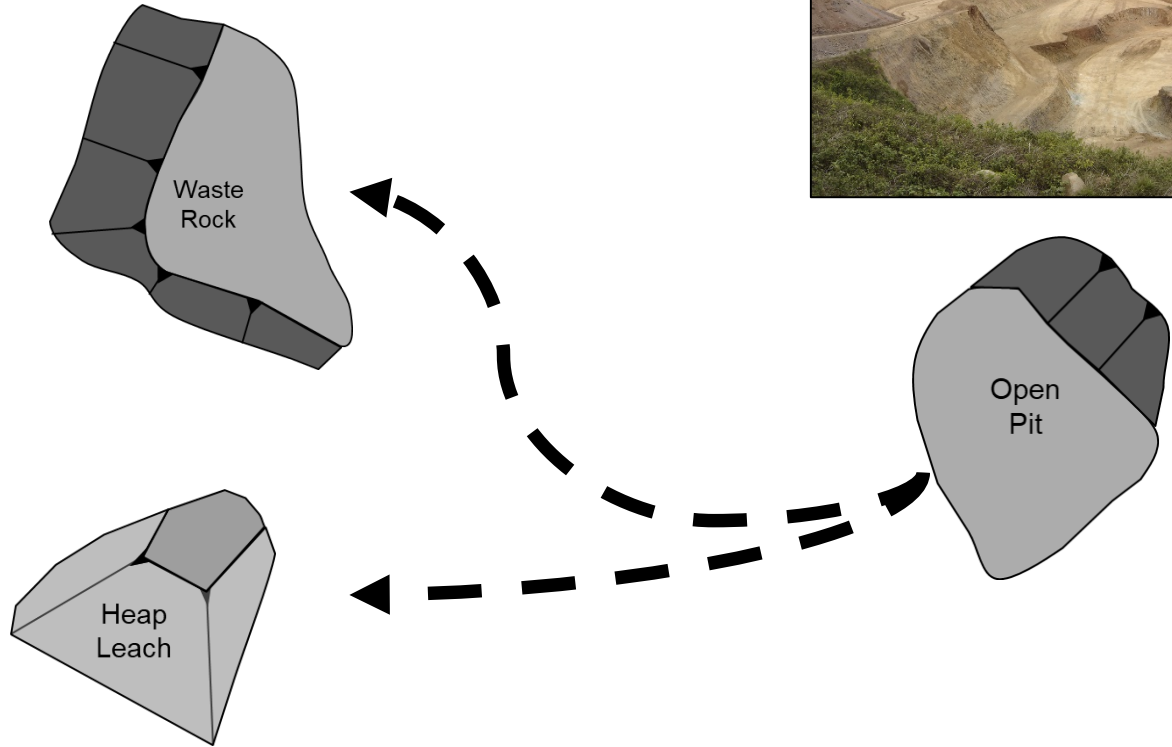
**Untangling the roles and liabilities after a  
waste rock/heap leach failure**

Terry Braun, P.E.

October 21, 2020

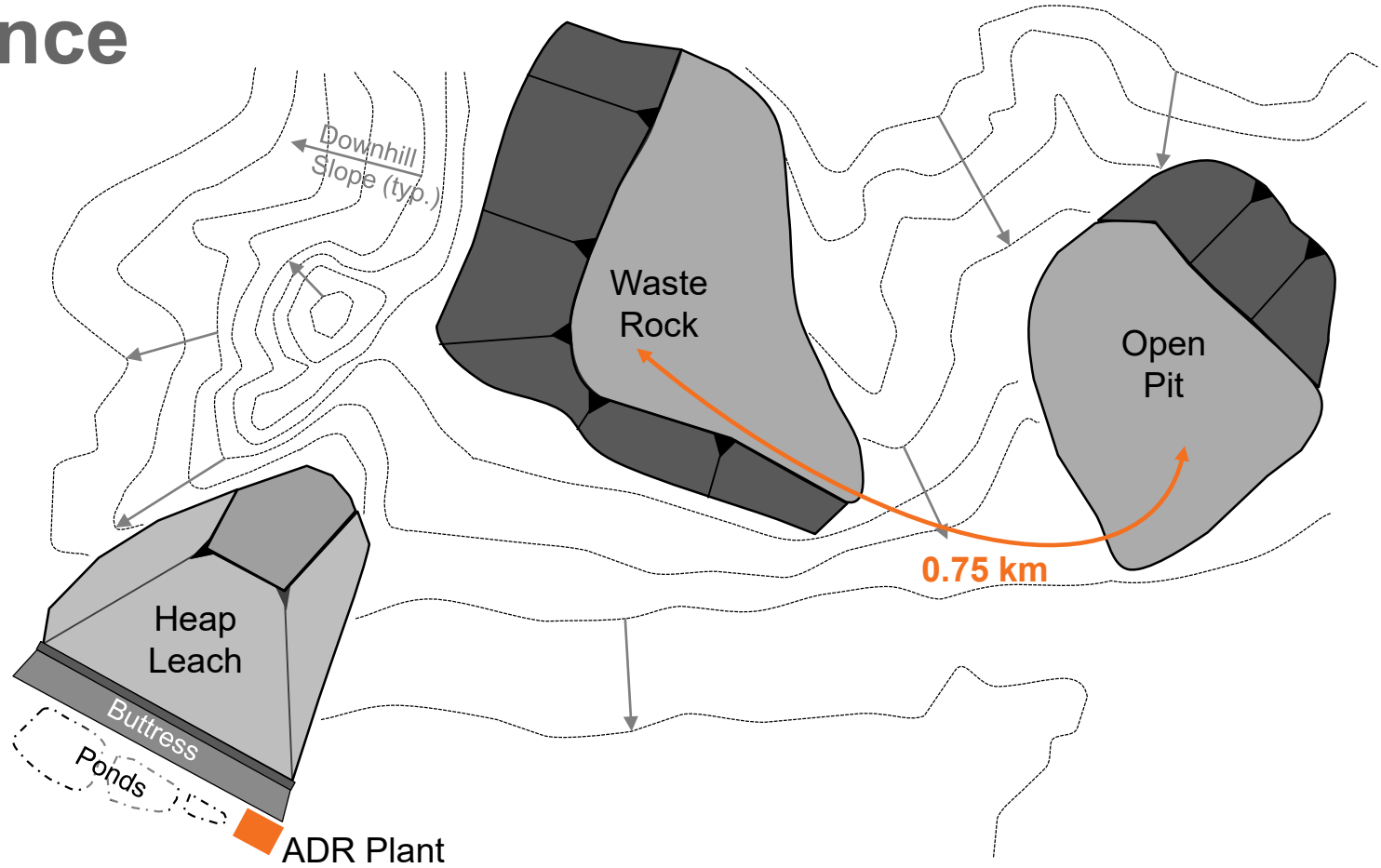
CSM Mine Engineering Seminar

# The Essentials



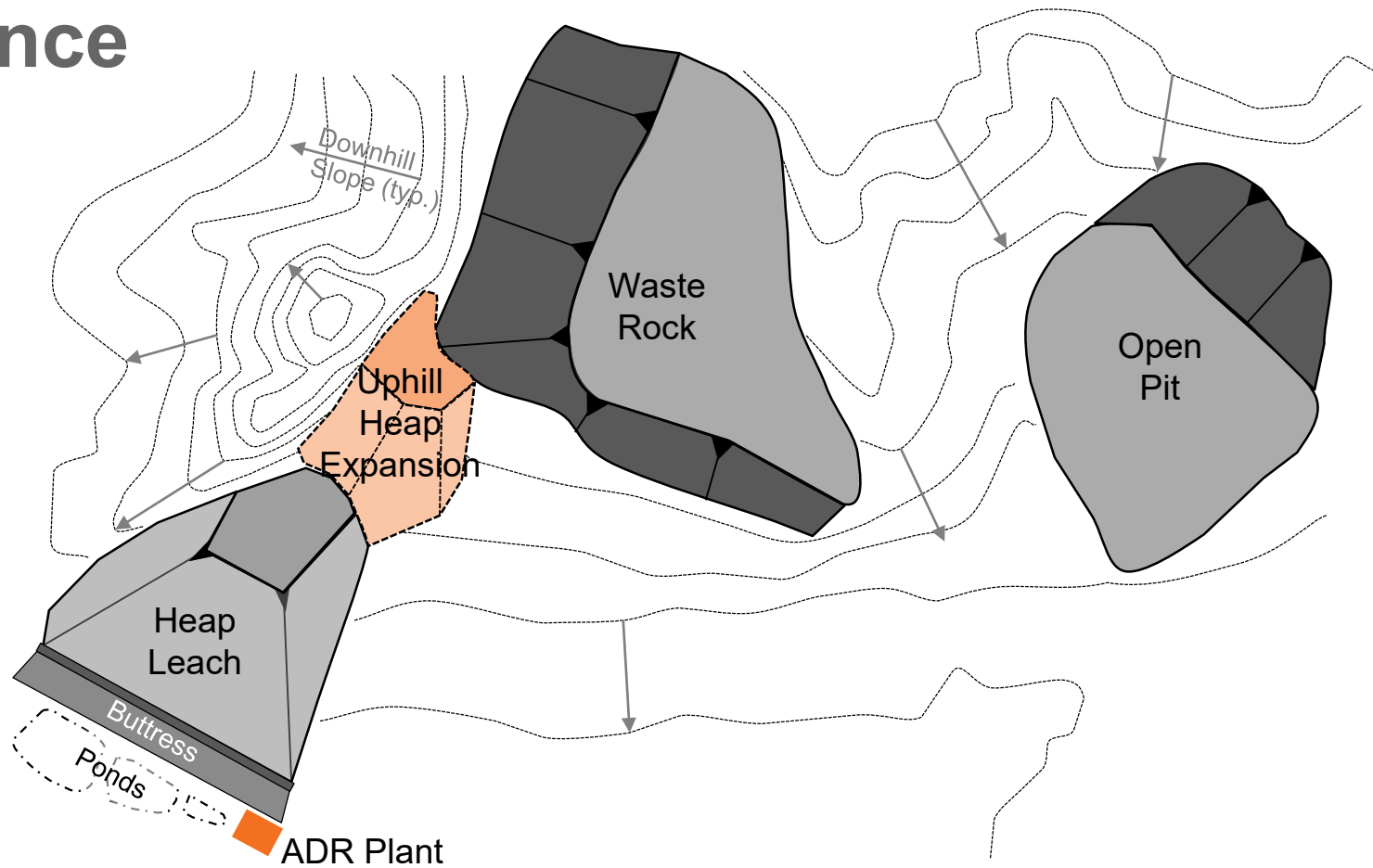
# The Sequence

100m



# The Sequence

100m

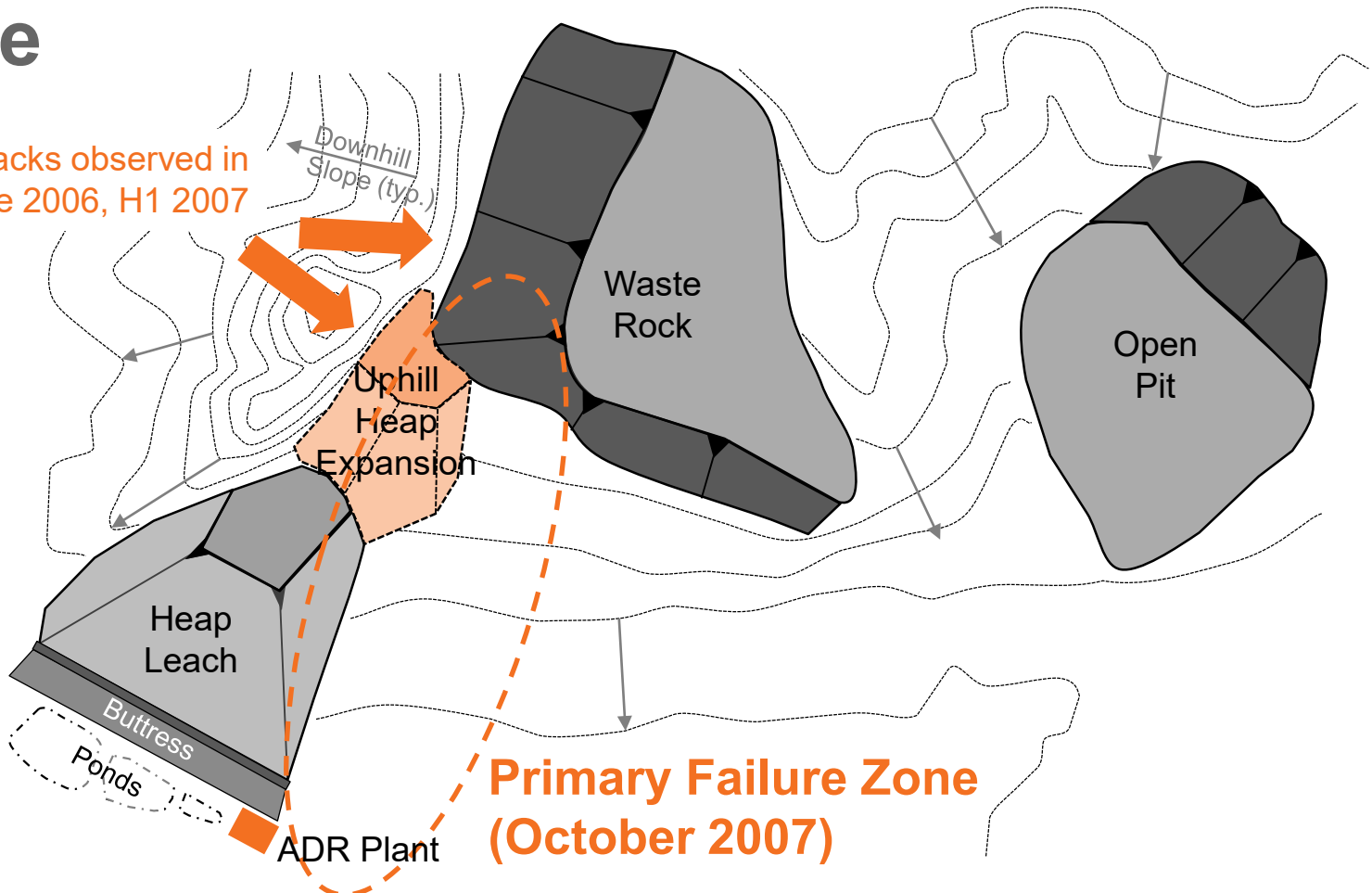


# The Rumble

Cracks observed in  
Late 2006, H1 2007

100m

May 2007 Landslide  
Potential Recognized



**Primary Failure Zone  
(October 2007)**

# The Rumble



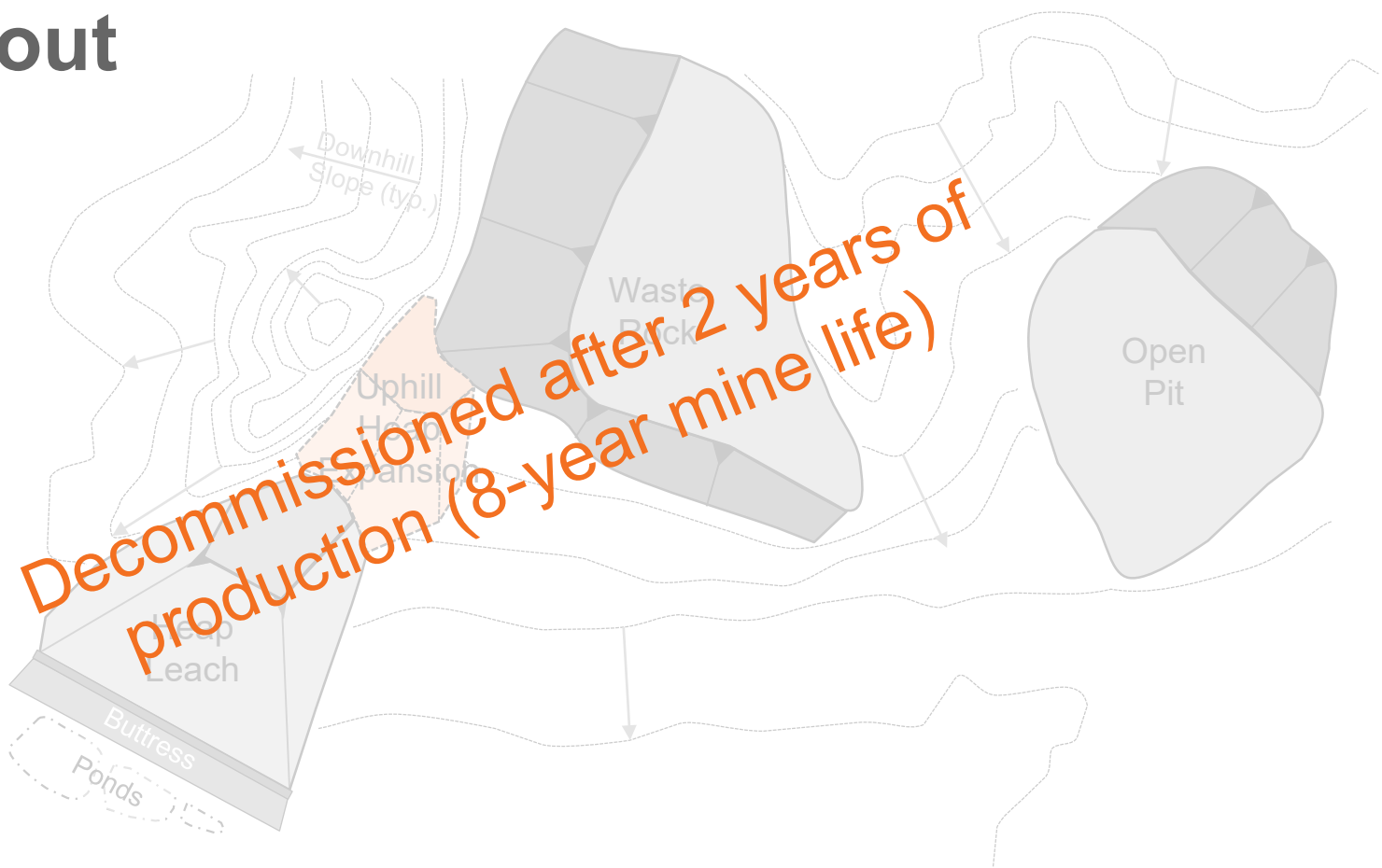
Google Earth Image

# The Rumble



# The Knockout

100m





Today



# Hard Lessons

## As the practitioner...

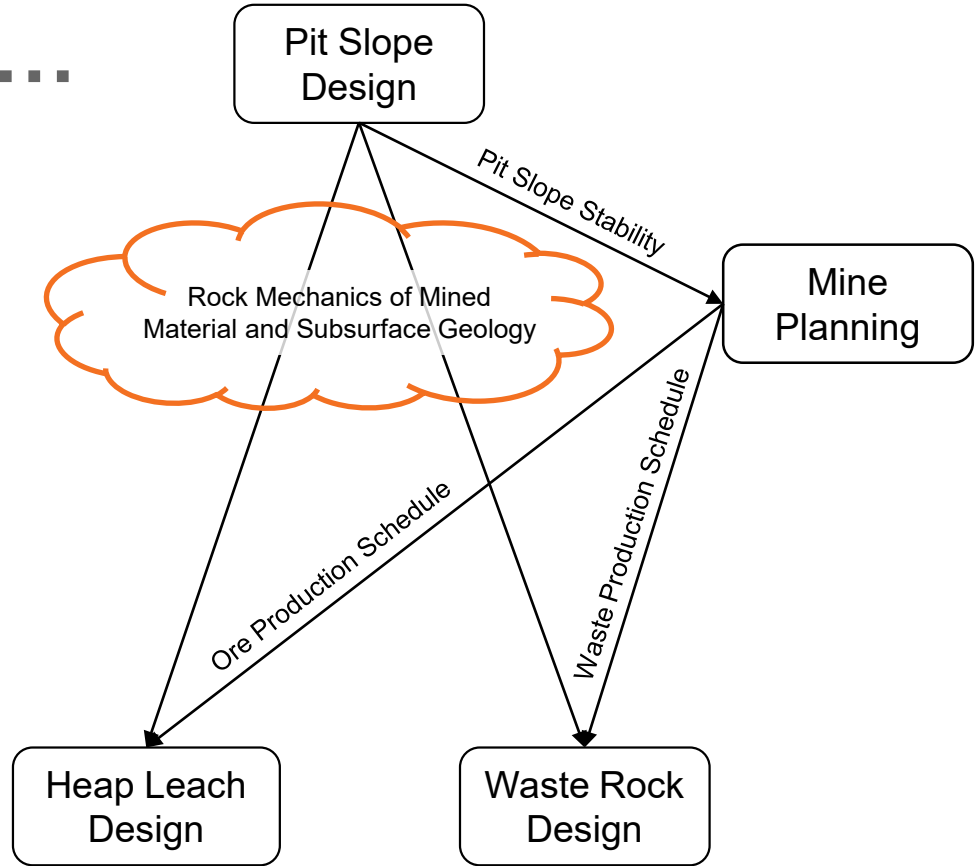
- **Loss** of institutional knowledge of a design project (i.e., personnel involved or records retained) will impair your re-construction of events
- Therefore, **record retention** policies for **design firms** are critical. Keep in mind:
  - Final design packages (obvious)
  - Digital communications (emails and attachments)
  - Meeting minutes and confirming correspondence
  - Documentation by others (and relied upon)
  - **Housekeeping** prior to formal archive
- **Owner's record retention policy?**

# Hard Lessons As the practitioner...

Missed opportunity for  
inter-disciplinary share

Better if internal and  
external team:

- Actively manages the sharing of inputs and work products
- Assesses if there are material inconsistencies



# Engineer of Record Common Definition



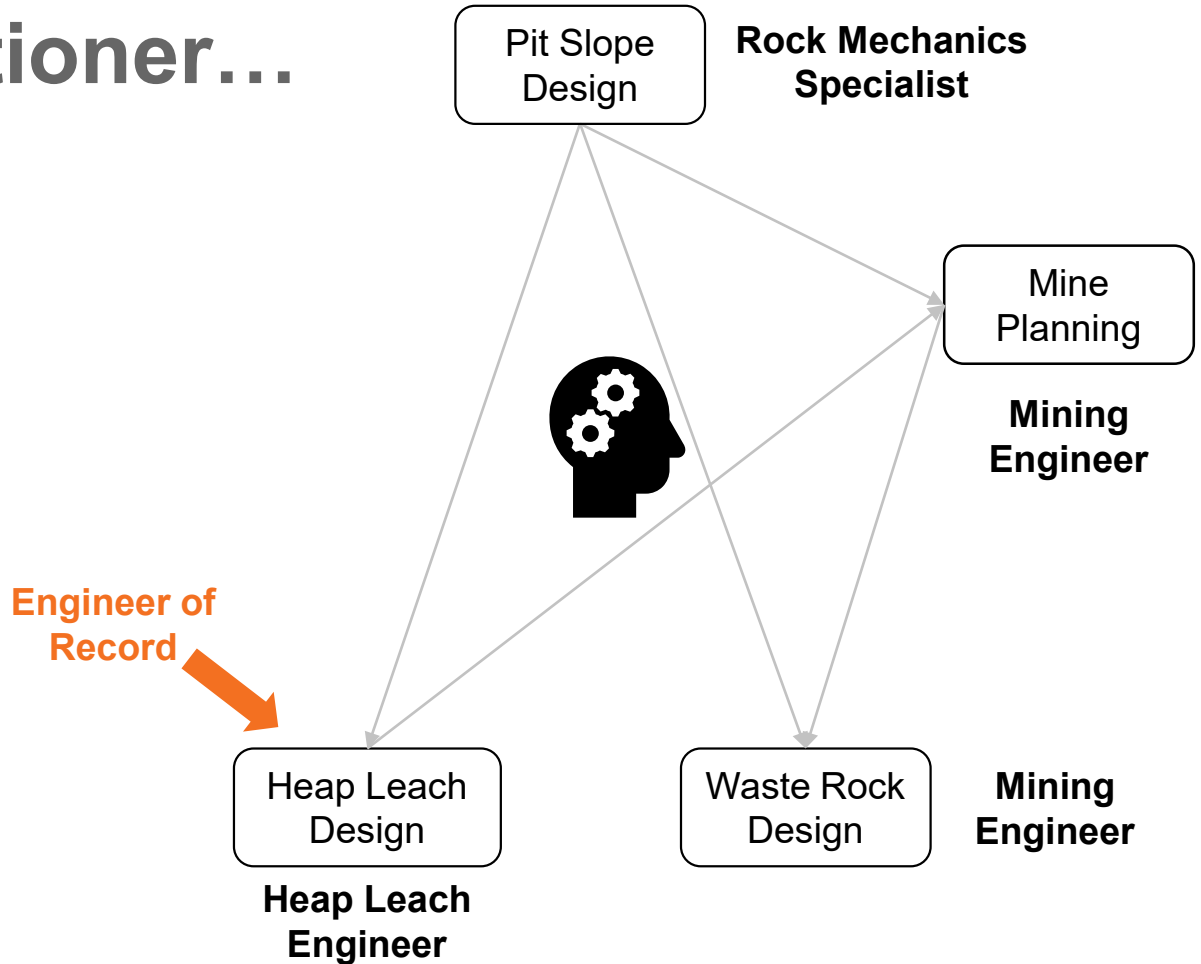
The qualified engineering **firm responsible** for confirming that the tailings facility is designed, constructed, and decommissioned with appropriate concern for integrity of the facility, and that it aligns with and meets applicable regulations, statutes, guidelines, codes, and standards.

The Engineer of Record **may delegate responsibility but not accountability.**

# Hard Lessons As the practitioner...

Role and  
responsibility of  
technical  
specialists and  
Engineers of  
Record

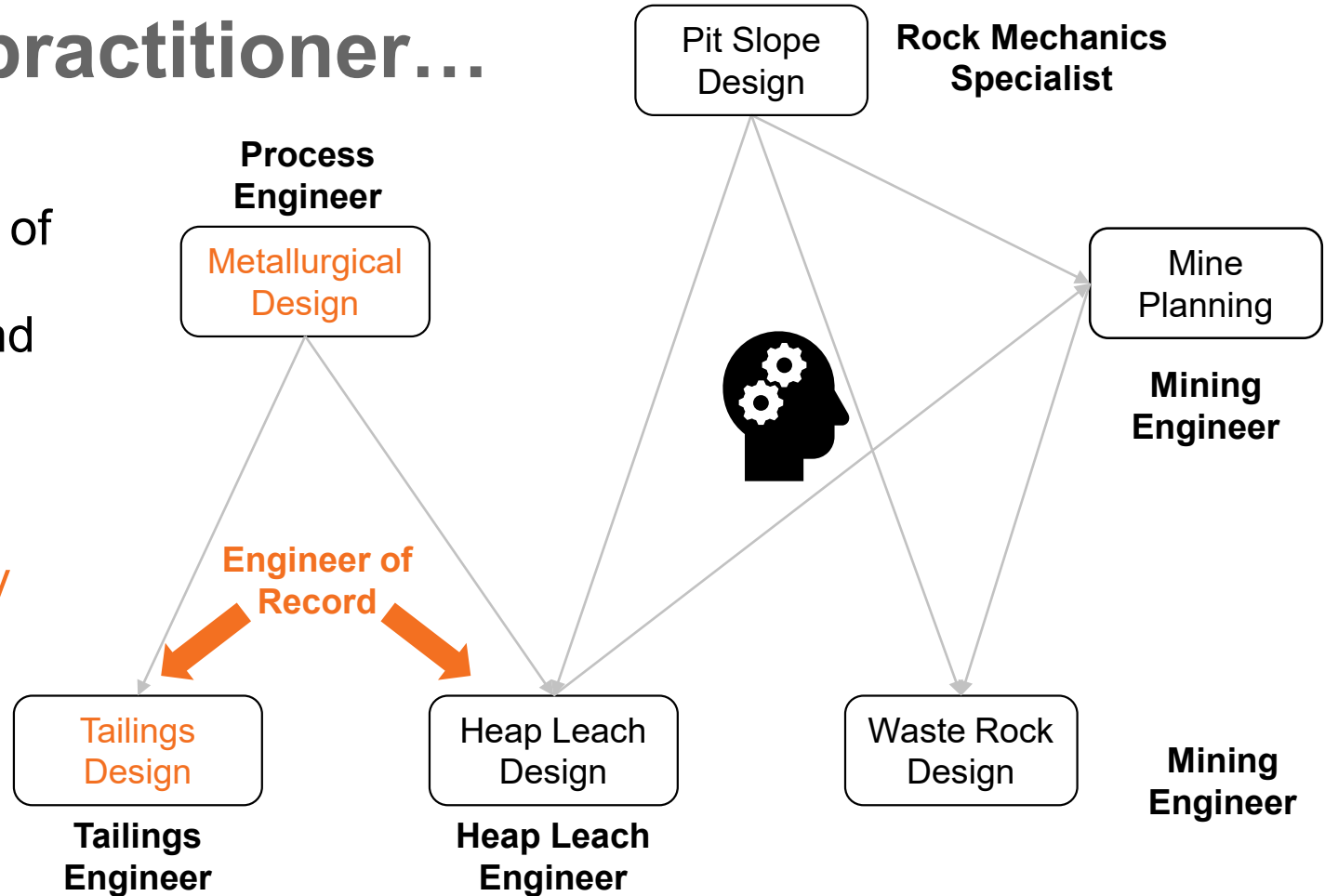
Lines of  
accountability



# Hard Lessons As the practitioner...

Role and responsibility of technical specialists and Engineers of Record

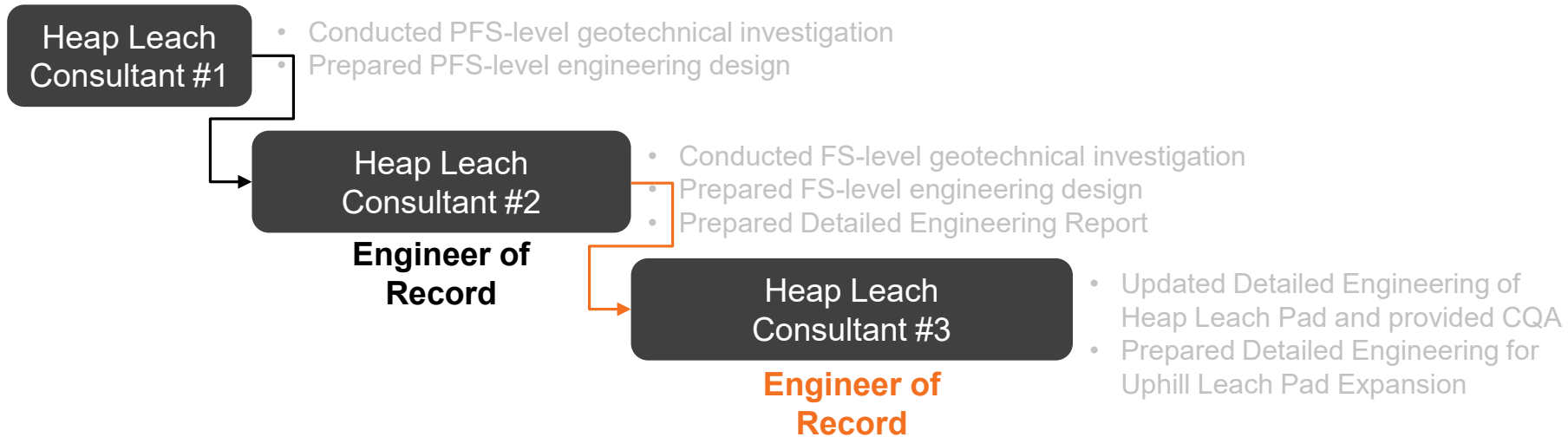
Lines of accountability



# Hard Lessons As the practitioner...

In terms of assuming the EOR role:

- **ONLY** rely on the **field data** collected by your predecessor(s), **not** the **opinion or interpretation**
- Predecessor(s) may still carry “**upstream liability**”



# Final Takeaways



- **Standard of Care** for professional geologists and engineers is effectively **global**
- Elements of the **Global Industry Standard on Tailings Management** apply to heap leach and waste rock facility design, e.g.:
  - **Integrated knowledge base** for a project minimizes the negative impacts due to **turnover** in project teams
  - **Robust design** should integrate the knowledge base and minimize the risk of failure to people and the environment



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