

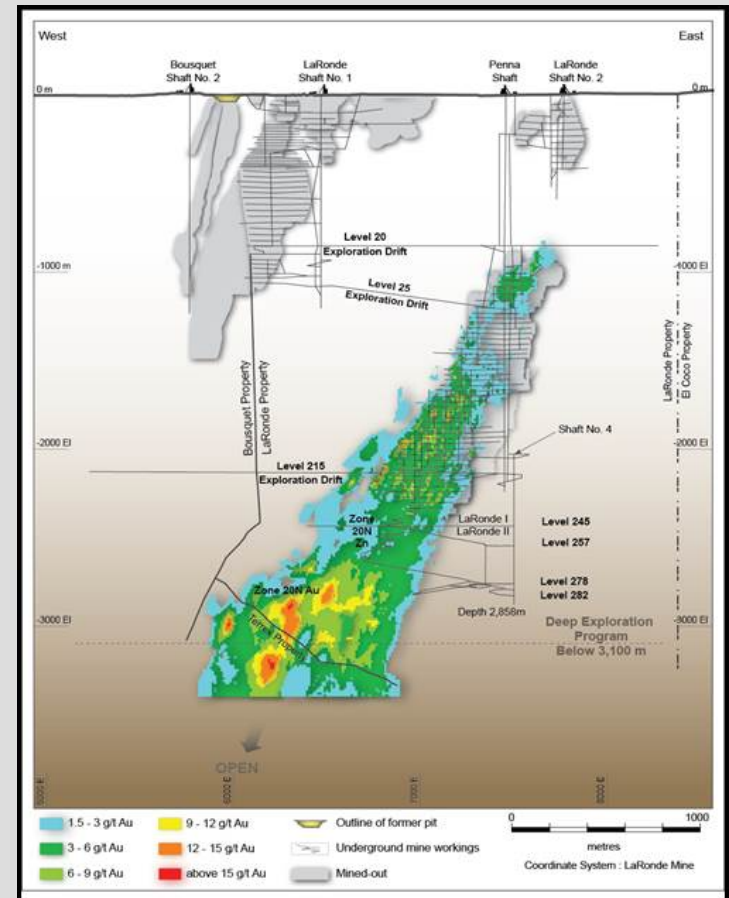


# CHALLENGES OF MINES RESCUE IN EXPANDING MINE OPERATIONS

Kent Armstrong

# The Challenges

- Easily accessible resources are no longer at surface
- Mines underground expand vertically and horizontally
- Mine Emergency plans have to keep up with this development



# The Challenges

- Deposits found in more remote locations
- Mutual aid/backup for Mine Rescue Support
- Mines being developed with no compressed air underground



- Limitations of CCBA duration including safety buffers
  - Further reduced by
    - heat
    - inclines
    - poor visibility
- Traditional mine rescue concepts are reaching their limits

- Mine rescue teams need to get to an incident site faster
- Emergency personnel needs to be protected without utilizing precious oxygen time
- Safe evacuation of team members and/or mine personnel in important and complex the longer the distance to cover.



- Equipment in place to facilitate mine rescue in deep operations
  - SCBA and Oxy



- Equipment in place to facilitate mine rescue in deep operations
  - Portable chambers
  - Permanent rooms
  - ChargeAir stations combining first response with escape capabilities



# New development

## Mine Rescue Vehicle MRV 9000



- Project between:



- Goal:
- Develop a fully encapsulated Mine Rescue Vehicle to
- support the emergency concept for safe expansion

- Rugged chassis, high climbing power
- Encapsulated pressurized driver cabin and cassette with independent air supply for 9 persons in total
- Operating time 4 hours  
- 45 min turnaround time
- Gas detection, thermal imaging and communication system





- MSHA MERD Missouri 2016
- Extensively used in underground training at Goldcorp operations Musselwhite and Timmins
- 2018 Underground Fire Response – Locating unaccounted for miner in heavy smoke. Safe Rescue was completed and return of Mine Rescue Team to surface without incident

- Challenges for mine rescue and emergency plans will continue to rise in the future
- Emergency plans have to be adapted
- With cooperation and combination of expertise by various stakeholders new tools can be added to face and meet these challenges

## Questions?

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**Thank you for your attention!**