

Case Study: Cuajone High Capacity Coarse Ore Handling System

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thyssenkrupp

Cuajone Mine



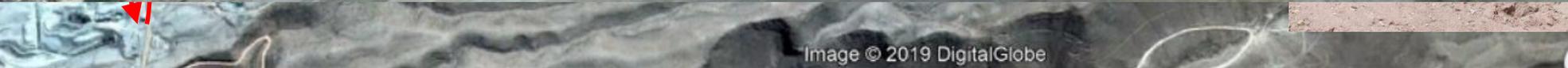
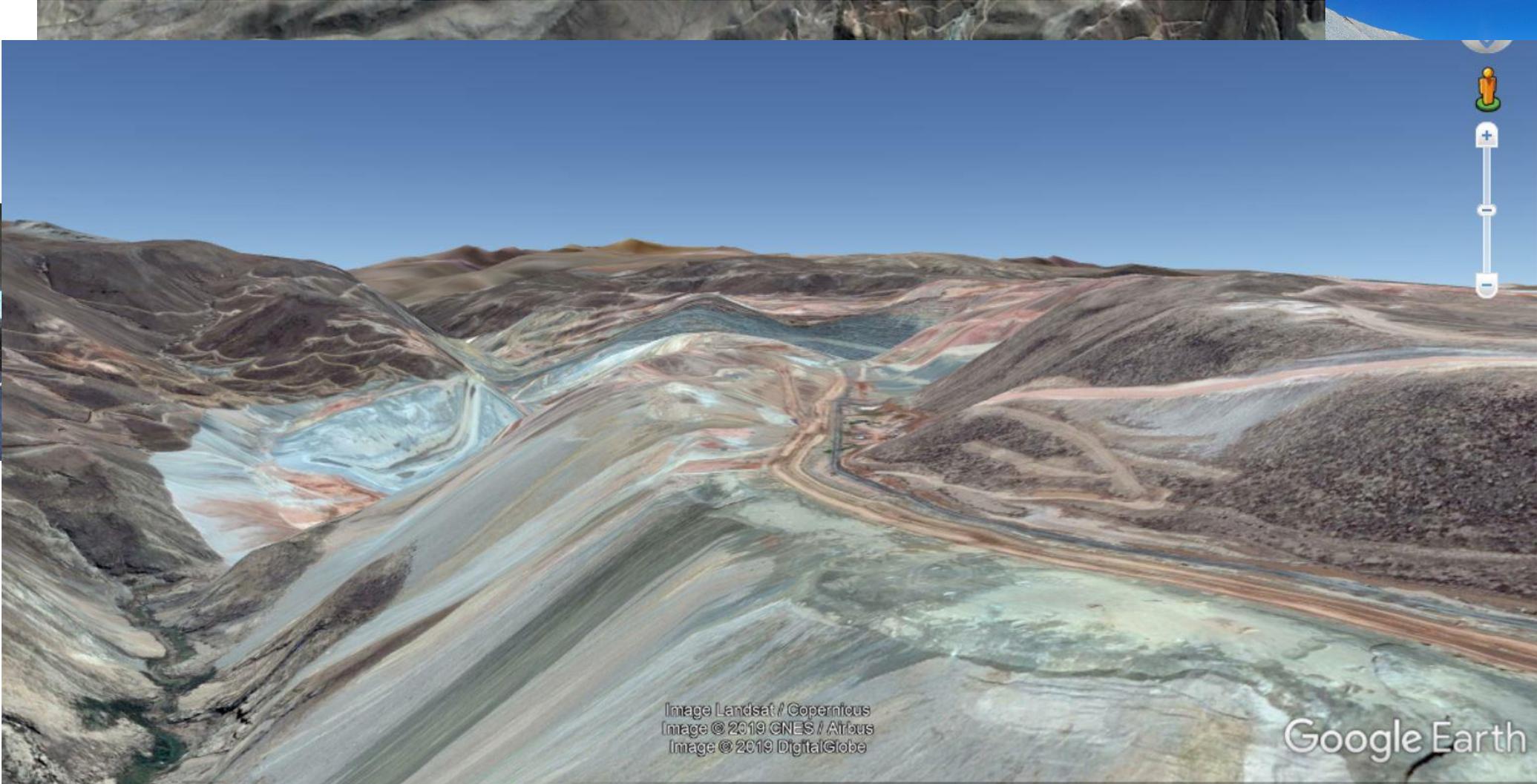
- The Cuajone Mine complex is located in the south of Peru in the Moquegua Region
- Fluor built the mine in 1976 for Southern Peru Copper Corporation
- At the time it was built, the mine and smelter was the single largest copper mine ever built



Image from Fluor



Cuajone Mine



Cuajone Mine

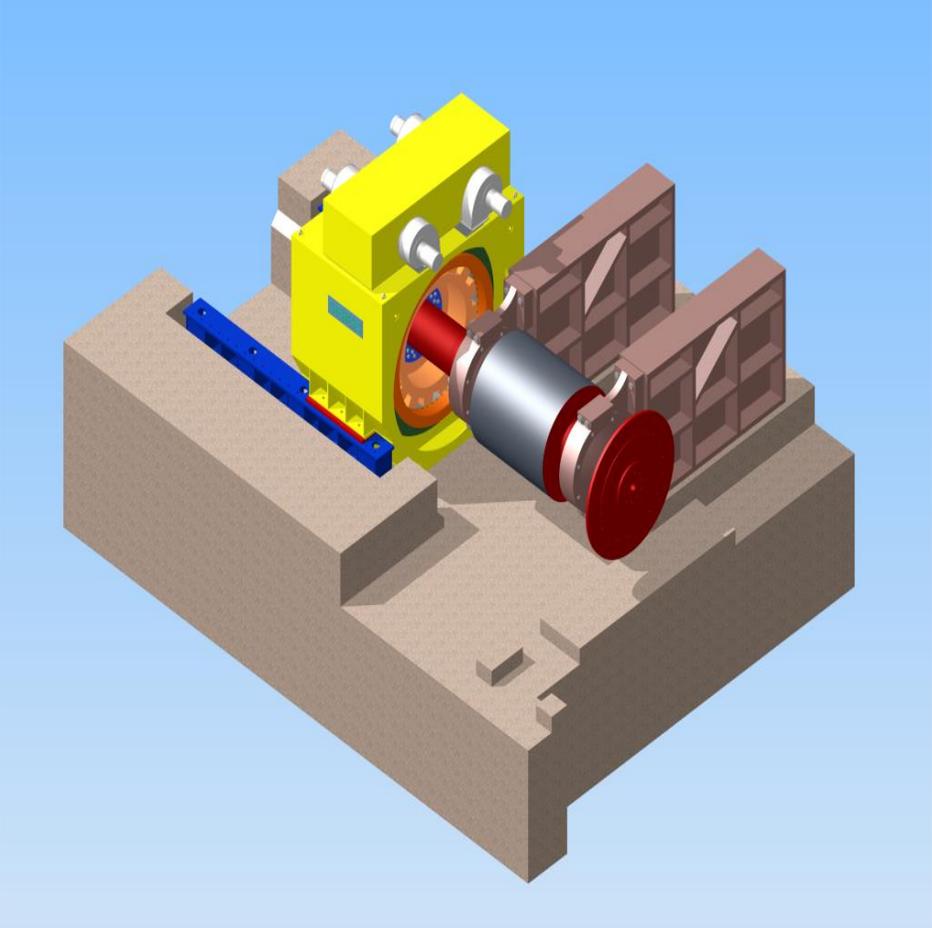
Shortcut Over the Waste Dump



- 63-114 Semi-Mobile Crushing Plant operating at 8800 tph
- From the tk supplied semi-2800 mm wide 80m long Discharge Conveyor and Transfer Tower
- 1830 mm wide 410 meter long Sacrificial Conveyor and Transfer Tower powered by a 1200 kW motor and fluid coupling
- EPC project was awarded to 1830 mm wide 6515 meter long ST6800 Overland Conveyor #1 powered by dual 6000 kW Gearless Motors
- 1830 mm wide 1043 meter long Overland Conveyor #2 powered by a head and tail end 550 kW VFD driven motors



Gearless Drives For Belt Conveyors



Gearless Drives for Belt Conveyors

- The right solution for power of 6 MW per pulley!



- Robustness
- High availability
- Reduction of operating cost
- Reduction of maintenance cost
- Reduction of noise
- Increased productivity through less down time of electrical and mechanical equipment
- Reduction of spare parts
- Overland and underground equipment (up-/ downhill)



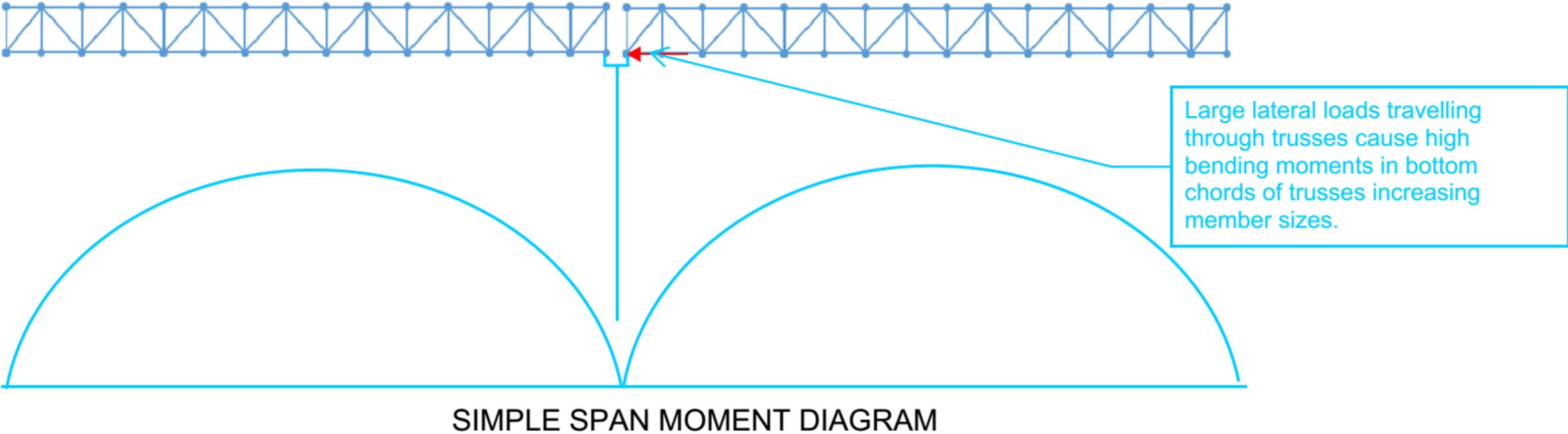
One Piece E-house with Central Cooling



Continuous Span Trusses



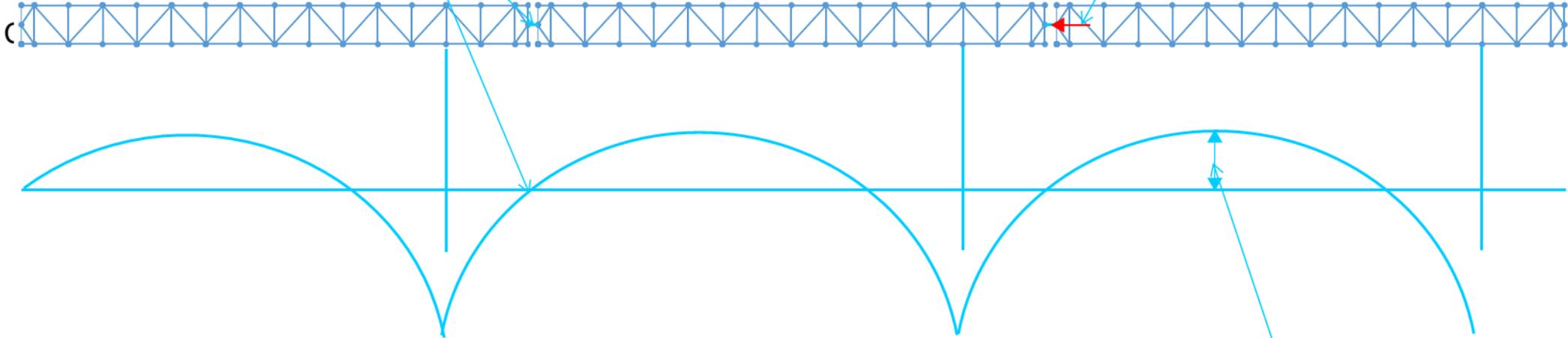
Simple Span Truss



Continuous Span Truss

Pinned connection with zero moment allows cantilever design that is still determinate structurally. This allows differential settlement at bents without changing stresses in structure

Axial forces transferred directly through trusses with no local bending in members



CONTINUOUS SPAN MOMENT DIAGRAM

Maximum moment reduces and chord members also reduced in size



Thank you.

