

Tschudi Copper Mine

Maximising value-addition by
producing pure refined copper for the
first time in Namibia



Weatherly

- *Weatherly is a London-based resources company focused on copper in Namibia. Together with our Namibian shareholders, we produce, develop and explore; creating jobs and expertise, and maximising mining value-addition to resources in Namibia.*

- Produce
 - Otjihase & Matchless
 - Tschudi
- Develop
 - Berg Aukas
 - Tsumeb West & Tsumeb Tails
- Explore
 - EPL132A Tschudi to Tsumeb



Tschudi

- A new Open Pit, Heap Leach, SX & EW copper mine
- Open pit mining rate of >25 million tonnes of rock per year
- 17,000t of LME Grade “A” copper cathode production per annum over initial mine life of 11 years
- Initial investment of over N\$1 billion
- Employment peaked at approximately 800 during construction, and expect steady state during operations at approx 550
- First Copper produced on 16 February 2015 – 99.99% Cu!



Why a first?

- Copper is commonly produced by processing ore to make a concentrate – typically containing 20-40% copper
- The concentrate is then smelted to produce “blister copper”, at approximately 98.5% purity – as produced in Tsumeb currently
- This blister copper must then be refined by an electrolytic process to produce >99.99% pure copper cathode, which is then suitable feedstock for manufacturing – copper wire, etc.
- This refining step is currently carried out overseas, except at Tschudi

Why a first?

- At Tschudi, we utilise a different processing technology
 - acid heap leaching followed by solvent-extraction (SX) and electro-winning (EW)
 - skips the concentrate & blister copper stages
 - produces pure refined copper cathode on site
- Acid heap leach - similar to Trekkopje (alkaline heap leach for Uranium)
- SX-EW – similar to Skorpion (Zinc)
- Combining these technologies on a significant commercial scale for copper for the first time in Namibia
- Extensively practiced successfully elsewhere – including North and South America, Australia, Zambia, DRC, etc.

Why SX-EW for Tschudi?

- The geology of the Tschudi deposit suits acid leaching – sandstone host rock plus leachable copper minerals, yielding approximately 85% copper recovery
- Modest acid consumption
- Proximity of an affordable supply of sulphuric acid (DPMT)
- Affordable and reliable power supply – NamPower
- Collectively makes Tschudi viable despite modest ore grades

Upstream value-addition

- Key input to acid heap leach processing is sulphuric acid
 - DPMT commissioning their new acid plant this year, meaning that Tschudi will be able to utilise Namibian-produced acid for the rest of its life
 - Interim acid supply imported, with assistance from Rossing
- 

Safety & Environmental Protection

- Open pit mining
 - conventional best-practice requirements during operations
 - progressive rehabilitation of waste rock stockpiles before closure
- Heap leaching
 - drippers not sprinklers
 - engineered and lined pad and drainage system
 - minimal acid transport once DPMT acid plant on line
 - leached heap rehabilitated upon closure
- SX-EW
 - fundamentally a very clean process with minimal emissions
 - fluid containment and fire prevention given highest priority from design stage onwards
 - full removal and rehabilitation upon closure

Slow, and fast

- Discovered late 60's
 - Drilling and bulk sampling in 70's, 80's and 90's
 - Trial pits in 2003
 - Weatherly era = 2007 on
-
- Land clearing started January 2014
 - First copper February 2015 – 13 months later



Rapid construction ...

- November 2013 Ground-breaking ceremony
- January 2014 Construction by Logiman starts
- June 2014 Basil Read Mining starts site establishment
- July 2014 B&E International starts construction
- August 2014 Open pit mining starts
- January 2015 First ore is stacked on the leach pads
- February 2015 First copper cathode produced
- March 2015 First shipment to Walvis Bay



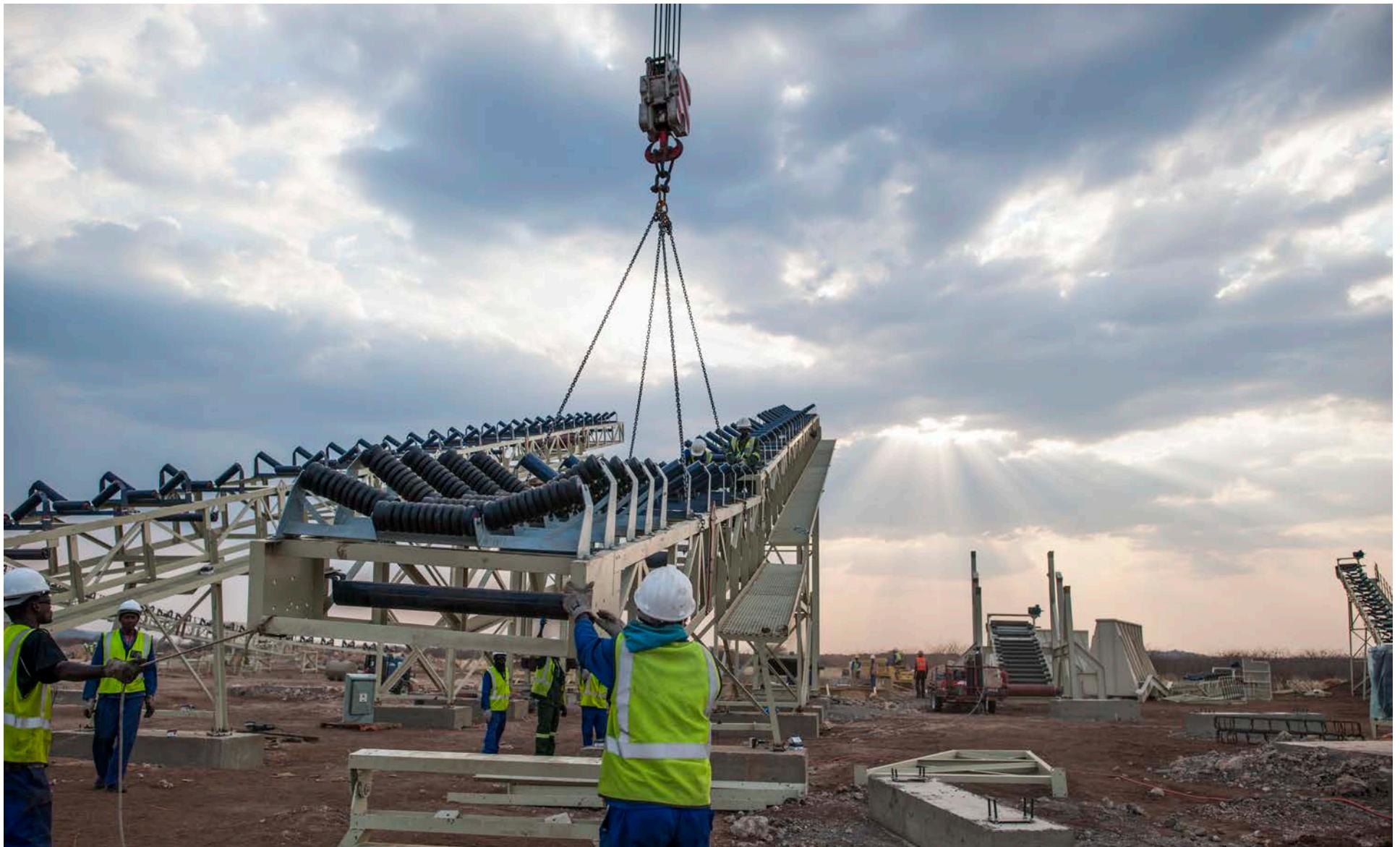
WEATHERLY
MINING NAMIBIA





WEATHERLY
MINING NAMIBIA







WEATHERLY
MINING NAMIBIA





WEATHERLY
MINING NAMIBIA

First Ore on the Pad – First Cu out of Heap





WEATHERLY
MINING NAMIBIA

Tschudi Today - Mining





WEATHERLY
MINING NAMIBIA

Crushing & agglomeration





WEATHERLY
MINING NAMIBIA

Stacking & irrigation





WEATHERLY
MINING NAMIBIA

Leachate collection





WEATHERLY
MINING NAMIBIA

Solvent Extraction (SX)





WEATHERLY
MINING NAMIBIA

Electro-Winning (EW)





WEATHERLY
MINING NAMIBIA

Electro-Winning (EW)





Safety Performance

- Two Lost Time Injuries
 - Hand injury when lifting
 - Burst ear drum



Commissioning & ramp-up

- Mining & processing
- Cathode quality
- Shallow ore types
- Working capital & mine schedule
- Targets for this year and beyond

Benefits

- Jobs
 - 800 during construction, 550 during operations, plus many more indirect jobs created in the Tsumeb area
- Skills
 - Mining, Metallurgical and Engineering
- Local participation
 - 10.8% of Weatherly is owned by Namibian shareholders, and the majority of the construction packages were awarded to Namibian providers
- Value-addition
 - Downstream - producing refined copper metal for the first time
 - Upstream – utilising Namibian-produced sulphuric acid from Dundee's Tsumeb smelter

Thank you

- Weatherly plc Board & shareholders
- Orion Mine Finance

- LogiMan and subcontractors
- Basil Read
- B&E International
- Intertek
- NamPower

- GRN, MME, MET
- Tsumeb, Oshikoto & Namibian community

- Our own Weatherly team





WEATHERLY
MINING NAMIBIA





WEATHERLY
MINING NAMIBIA





WEATHERLY
MINING NAMIBIA



Summary

- Tschudi is an exciting new copper mine, creating jobs, skills and upstream- and downstream- value-addition in Namibia by producing pure refined copper metal for the first time
- The heap-leach SXEW technology is clean, reliable and proven – and developing these skills in Namibia may open up further copper mining opportunities in future

