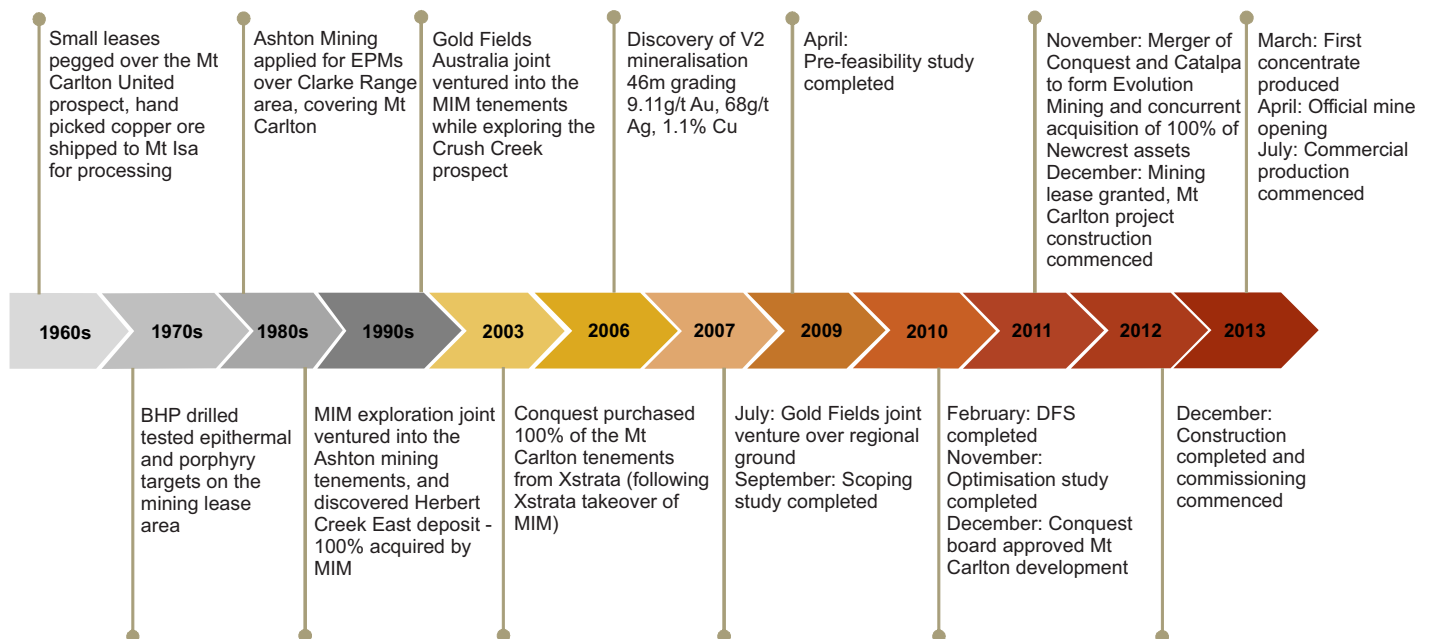


## Overview

Evolution Mining is a leading growth focussed Australian gold company forecasting to produce between 790,000oz and 805,000oz gold in FY18. It is also the largest gold producer in Queensland and is expected to produce between 290,000oz and 315,000oz gold from its three Queensland assets in FY18. Mt Carlton produce between 100,000 and 110,000 gold equivalent ounces at an AISC of A\$680/oz - A\$730/oz in FY18.

<b>Location:</b>	150km south of Townsville
<b>Producing:</b>	Gold, silver and copper
<b>Site management:</b>	Richard Hay – General Manager
<b>Mine Site contact number:</b>	+61 7 4422 0100

## History



## Geology

The Mt Carlton project is a high sulphidation epithermal style deposit with mineralisation occurring within felsic volcanic rocks on the northern margin of the Permian Bowen Basin. The project is comprised of gold, silver and copper. Later andesitic volcanoclastics overlies a rhyolitic sequence which in turn underlies a package of sediments and conglomerates. Mineralisation is structurally controlled which is exclusively hosted within the advanced argillic altered rhyodacite. Discrete and discontinuous steeply dipping ENE trending breccia dominated quartz - sulphosalt infilled veins form high grade bonanza lodes. Paragenetically, the sulphosalts replace sphalerite and galena which are associated with late stage copper sulphides. Coarse gold occurs as small grains (0.1 mm) at quartz-sulphide infill contacts and in sulphosalts. Basaltic/doleritic dykes which mirror pre-existing structures cross cut mineralisation.

**Ore Reserves (Dec 17):** 4.50Mt @ 4.92g/t Au for 712koz

**Mineral Resources (Dec 17):** 11.89Mt @ 2.76g/t Au for 1,056koz

## Mining

Mining production is derived solely from the V2 deposit following the completion of the silver rich A39 deposit in FY14. The V2 deposit is flat lying and situated 20m to 180m below surface and is approximately 70m thick with a 500m by 500m areal extent. Mining is by conventional drill and blast, load and haul methodologies, mining 5m benches in 2.5m flitches.

The V2 pit will have a life of mine strip ratio of 2.3:1. The low grade ore will be blended with high grade ore to optimise concentrate grade generation matching the plant capability.



## Mining CONT

<b>Mining method/s:</b>	Conventional open pit mining
<b>Ore mined:</b>	1.34Mt (FY17)
<b>Waste mined:</b>	3.26Mt (FY17)
<b>Mining contractor:</b>	Owner operator
<b>Mine work roster:</b>	8/6 days day shift / night shift rotation
<b>Haulage / mine trucks:</b>	3 x Caterpillar 777F dump trucks
<b>Shovels / excavators / loaders:</b>	1 x 1200 excavator, 2 x Caterpillar 980 loaders
<b>Dozers:</b>	1 x Cat D10N
<b>Haul road maintenance regime/equipment:</b>	1 x Caterpillar 14M grader, 1 x Caterpillar 769 water truck
<b>Drilling equipment:</b>	2 x Panterra 1500, 1 x Panterra 1100, 1 x Atlas Copco L8
<b>Explosives:</b>	MAXAM water gel 8,000-10,000
<b>Blasting contract services:</b>	SRG
<b>Mine communications products/systems:</b>	Digital two-way radio communications via repeater station
<b>Mine survey equipment/products:</b>	Leica GPS / solar power base station / repeater
<b>Mine planning software:</b>	Surpac, MineSched, Leapfrog



## General

<b>Drive in Drive out service provider(s)</b>	Detour Coaches with buses to Townsville and Bowen
<b>Accommodation:</b>	Available for up to 200 people
<b>Mine workforce:</b>	165 employees & contractors Approximately 20-25% employees are local from Bowen Ayr Burdekin region. Apprenticeships and traineeships draw on the local community for these roles
<b>Safety Environment/Community:</b>	Evolution strives to enable all work activities related to its operations to be carried out safely and with all practicable measures taken to remove or reduce risks to the health, safety and welfare of personnel, plant and equipment. Evolution is also committed to attaining an outstanding level of environmental performance in all of its workplaces
<b>Community:</b>	Evolution has a strong corporate culture and commitment to proactively and positively engage with the communities in which we operate. We recognise the need to proactively consult and understand the values, needs, beliefs, traditions and sensitivities of the communities in which we operate. Our community-focused programs are built around the belief that working collaboratively leads to more appropriately targeted and sustainable social initiatives

## Processing Plant

<b>Ore treatment / processing method/s:</b>	Crushing, grinding and bulk sulphide flotation to produce a polymetallic concentrate
<b>Delivery:</b>	Concentrate trucked to port in Townsville and shipped to Shandong, China. Trip from Townsville port to smelter takes around three weeks for gold concentrate
<b>Sale agreements:</b>	Guoda Gold Co Ltd: Gold concentrate from V2 deposit
<b>Annual average throughput rate:</b>	~800ktpa (design 800ktpa)
<b>Crushing plant total capacity:</b>	250tph
<b>Power:</b>	National grid via Ergon Energy
<b>Primary crushing/grinding plant/machinery:</b>	Single stage crushing, single toggle jaw 1,067mm x 760mm, feed size 500mm, produce size P80 120mm
<b>Grinding plant equipment:</b>	Single SAG mill (7.32m x 3.8m EGL) with 32,000kW installed power, steel lined, 24 x 20mm discharge grates, trommel grate discharge with trommel screen, classification Warman Cavex 400mm cyclones
<b>Grinding media:</b>	Blend of 125mm and 105mm forged steel balls
<b>Screening/plant equipment:</b>	Trash screen horizontal vibratory 1.2m x 3.0m, polyurethane deck 13mm x 1.2mm cross flow slots
<b>Recycle crusher:</b>	2 x Sandvik cone crushers, nominal CSS of 8mm
<b>Mineral liberation plant/equipment:</b>	Flotation circuit consists of 6 x Metso RCS 40 cells (Rougher/Scavengers) & 9 x Metso RCS 5 cells (cleaners), 2 x IsaMill M500 (regrind mill)
<b>Mineral recovery plant/equipment:</b>	Delkor concentrate thickener (8.0m), 2 x concentrate storage tanks, Outotec LAROX Pf1052 filter press, Delkor tailings thickener (14.0m)
<b>Process pumps:</b>	Majority of process pumps Warman, split casing. Cyclone feed pumps Warman 1500EE-MCU. Tails pumps Warman 4/3DD-AH
<b>Chemical/reagents used:</b>	PAX (Potassium Amyl Xanthate), DSP009 (Thionocarbonate collector), frother, flocculant, lime
<b>Final product storage handling:</b>	2 tonne capacity bulk storage bags are filled with filtered concentrate via a materials handling screw. Bags are transported to Townsville storage facility to await shipment
<b>Process control system:</b>	Citect SCADA
<b>Maintenance system:</b>	Pronto
<b>Processing and maintenance work roster:</b>	4 shifts, 8/6 roster



**View of Mt Carlton plant at night**

# Process Flowsheet

