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CVL Economics

Costing Methodology, (C1,C2,C3, M1 etc..)

- Net Direct Cash Cost (C1) represents the cash cost incurred at each processing stage, from mining through to recoverable metal delivered to market, less net by-product credits (if any). The M1 margin is defined as metal price received minus C1.
- Production Cost (C2) is the sum of net direct cash costs (C1) and depreciation, depletion and amortisation. The M2 margin is defined as metal price received minus C2.
- Fully Allocated Cost (C3) is the sum of the operating cost (C2), indirect costs and net interest charges. The M3 margin is defined as metal price received minus C3.

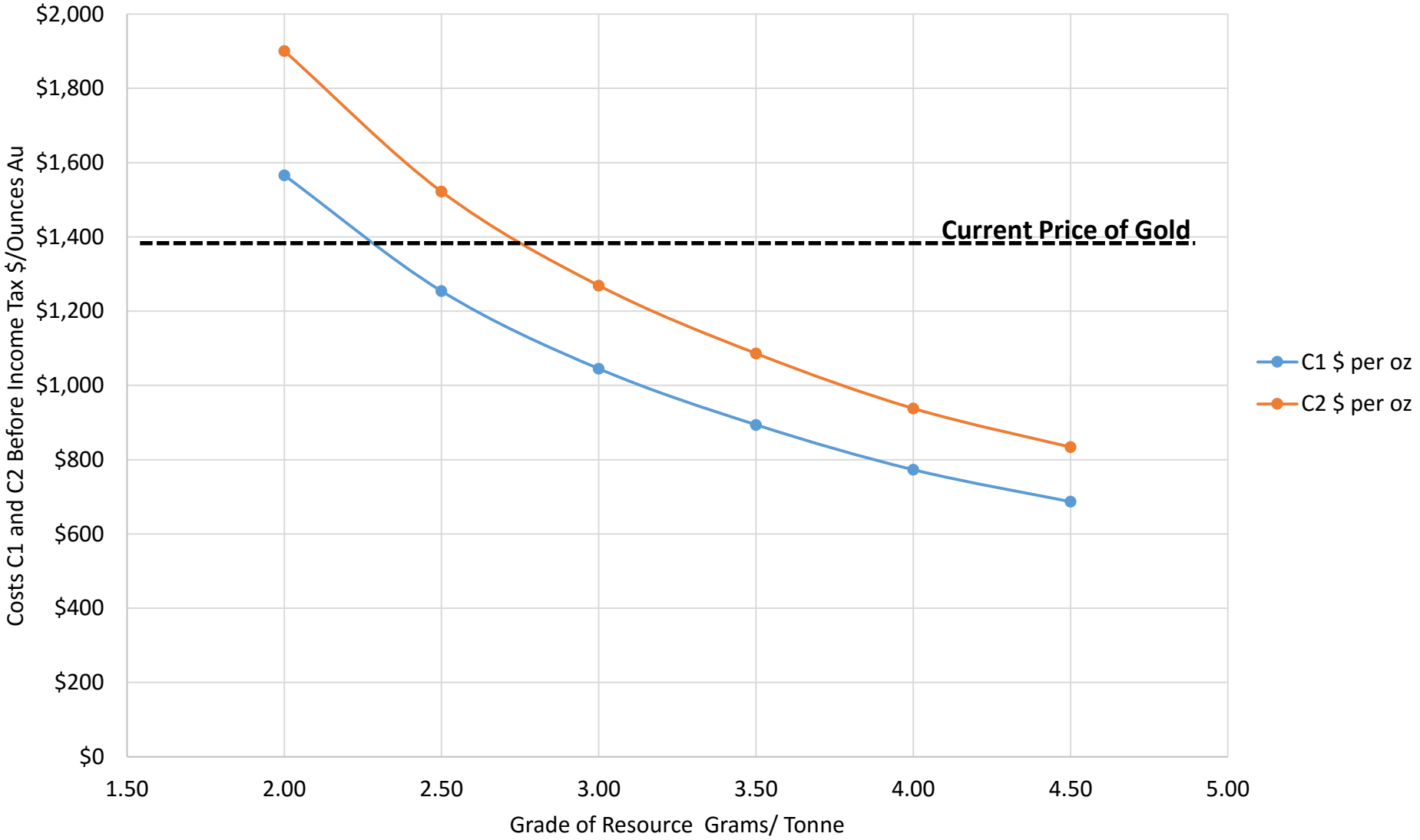
Comparative Cases

- We are going to present a series of C1 and C2 costs that we originally did for a series of small gold prospects in SE Asia. These three case studies have been modified to Australian costs for reagents, energy, supplies and people.
- The costs have been done for various head grades operating at three tonnage rates:
- 100 TPD with capital of $A2,000,000
- 1000 TPD with capital of $A 7,200,000
- 2000 TPD with capital of $A 10,200,000

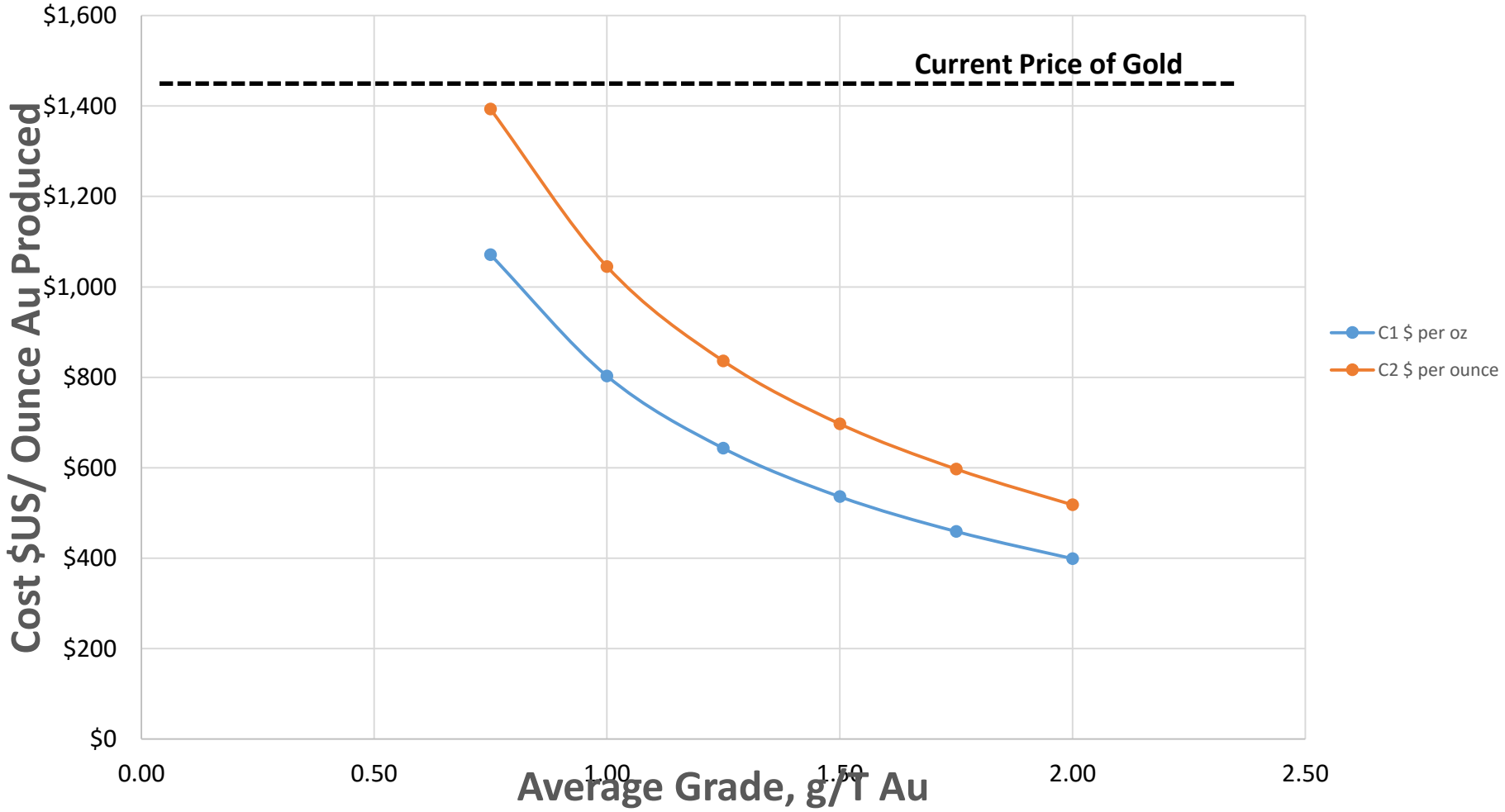
Assumptions

- Electricity: $0.31 per Kwh
- Water: $2.50 per Kl
- Strip ratio: 1:1
- Gold recovery at rate of 85% by the CVL method
- Reagents (cyanide, lime, flocculants , tailings disposal, carbon) at current prices today in Kalgoorlie region
- Costs include: Crushing plus capital provision for very fine crushing (to 1mm) if needed to get recovery
- The carbon is processed by simply scrapping the loaded carbon and burning it to get the gold

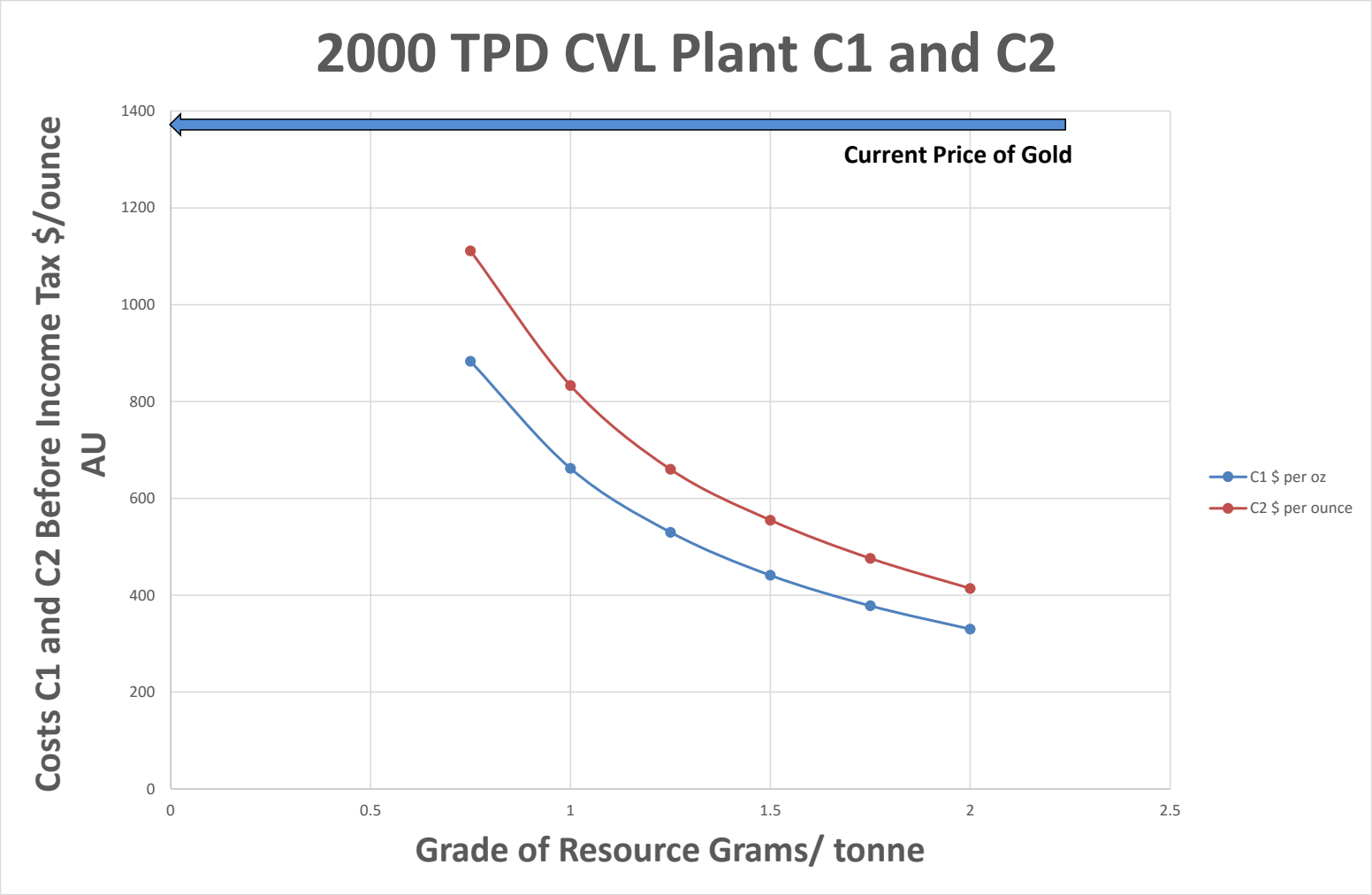
Cost and Grade with a 100 TPD CVL Plant



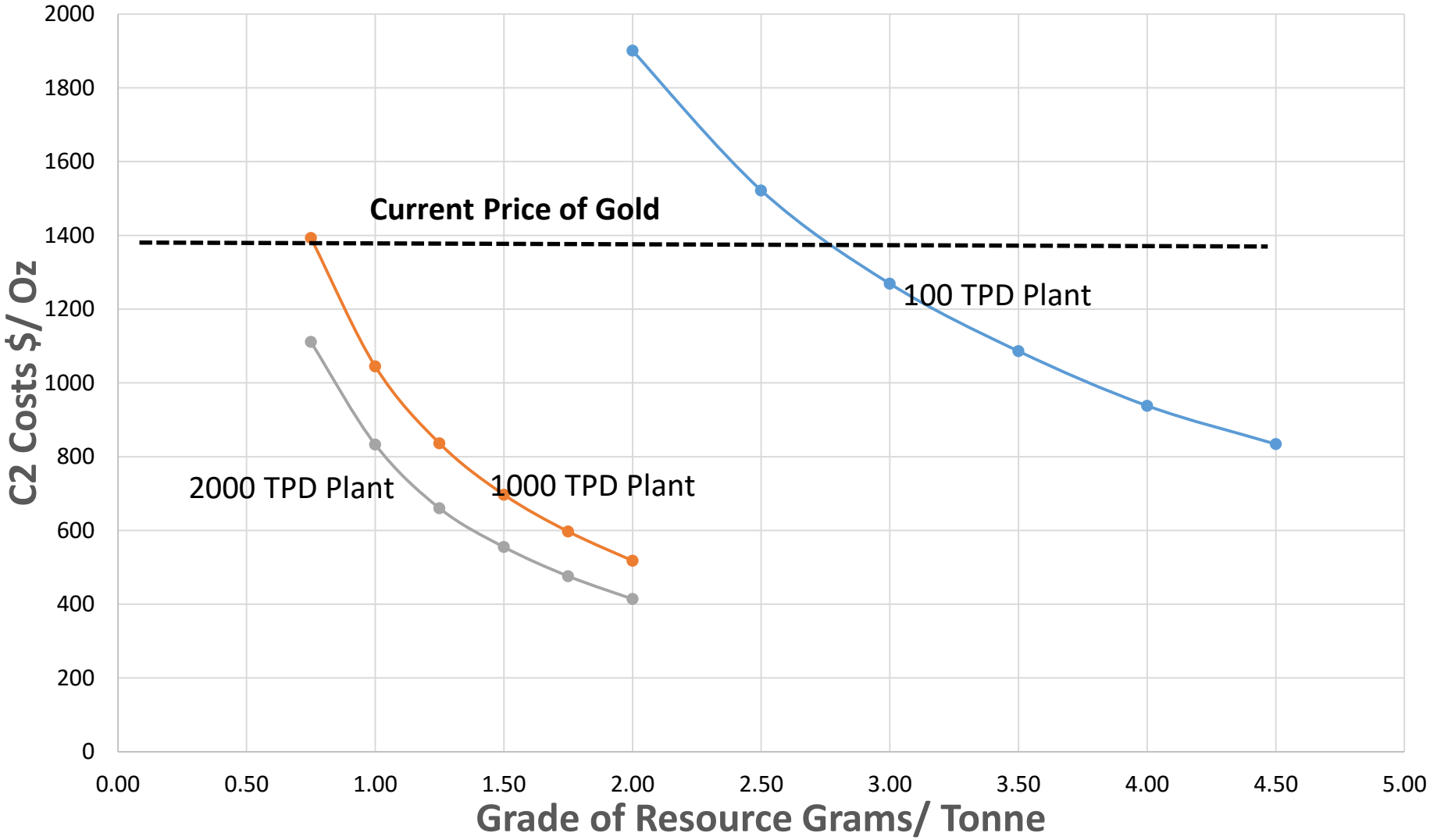
Cost and Grade with a 1000 TPD CVL Plant



Cost and Grade with a 2000 TPD INNOVAT Gold Plant



Comparison – 3 different size plants

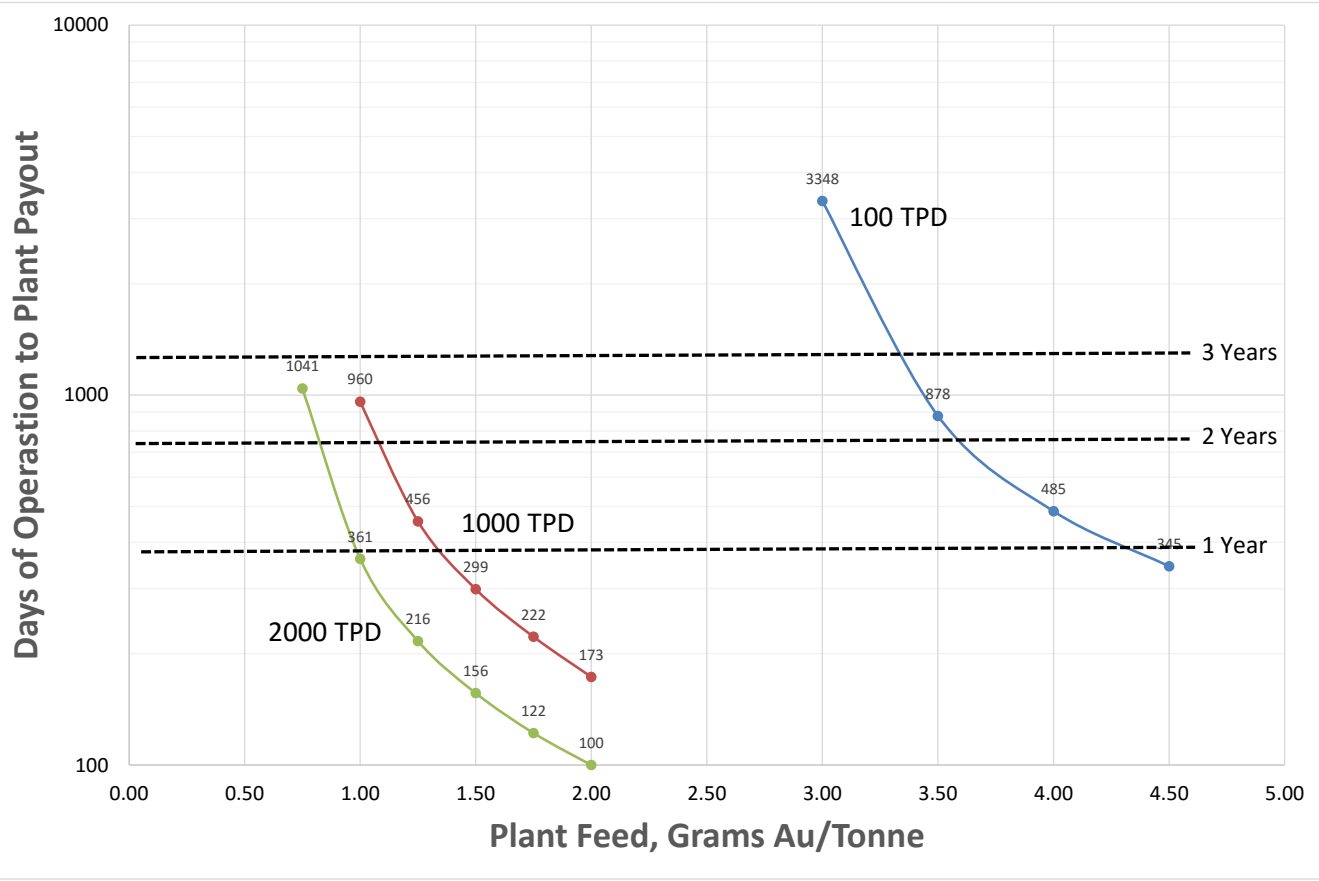


Methodology

- The next illustration to be presented will be tonnes that will have to processed at the plant capacity to pay out the plant out-right before income tax.
- This will be determined by dividing the M2 Margin (Sales Price less C2 costs) into the total cash liability (capital).
- Sales Price of $1350 per ounce will be used against a NY price of $1380 yesterday!

Payback Analysis of Economic Gold Properties

Days Operation to Payout @ 90% Avil.			
Grade	100 TPD	1000 TPD	2000 TPD
4.50	345		
4.00	485		
3.50	878		
3.00	3348		
2.50			
2.00		173	100
1.75		222	122
1.50		299	156
1.25		456	216
1.00		960	361
0.75			1041
Capital	$2,000,000	$7,200,000	$10,200,000



- A table will be presented that will list parameters that a resource should approach before it should be considered for an INNOVAT type of plant.
- An organization should always seek a proper return to shareholders. In this model, the costs, C2 has the depreciation (1/3 of the capital paid back yearly), as well as 6% interest added to it.
- The time that is recorded in days and years on the previous graph is the time to payout of the whole of the sum of capital plus interest.
- My own feelings are that for a “Bread and Butter Mine” the following criteris should be met:

The break even payout time against grade

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Grade	100 TPD	1000 TPD	2000 TPD
4.50	345		
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Minimum Deposit grades and sizes

Plant size	Capex, $m	Capacity, tpa	Min Feed Grade for capital payback in 12 months
100 TPD	2.0	33,000	4.1 g/t
1000 TPD	7.2	324,000	1.3 g/t
2000 TPD	10.2	650,000	1.0g/t

A “Bread and Butter” Mine

- Should be able to refund the capital plus interest to the shareholders in a 1 year period with interest.
- In the case of a 100 TPD mine, a reserve of 33,000 tonnes, with a strip ratio of 1:1 , and an average grade of 4.1 grams would pay out the $2,000,000 capital in a year and add 6% interest.
- If this sum were invested by the shareholders to provide a drilling fund other and lower grades could be considered.

1000 tonne per day Plant

- Capital is $7,200,000
- Tonnes per year milled is 324,000 tonnes per year.
- The grade to return capital and interest in a year is around 1.3 g/T
- It can mill profitability down to a head grade of 1.0 GPT

2000 tonne per day mill

- Capital is $10,200,000
- Tonnes milled per year is 650000 tonnes
- The grade to return capital and interest in a year is just below 1.0 GPT.
- This can mill profitably at 0.75 GPT.
- Results get very poor below 0.6 GPT.

Summary

- The conclusion is that , if an ore is suitable for treatment in a CVL plant, it offers a new way to effect high recovery from low grade ores previously unavailable to the gold mining industry.

- A new range of deposits in both size and grade can be considered as viable candidates for development and early cash flow.

INNOVAT CVL

Environmentally Responsible Low Cost Processing

- Easy to operate
- Lowest Capital Cost
- Lowest Operating Cost
- Fully Detoxified Discharge
- Tailings Dams are not required
- Engineered and Manufactured by Industry Leaders

INNOVAT MPS Limited

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