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Energy consumption standards and costs in South African gold and platinum mines

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UMECS – B1: Anglo gold Ashanti

1 – What is the current mining depth level of the mine

		Expl	Shaft
Great Noligwa		3400 m…	
Kopanang		2500 m	2700 m.
Tau lekoa		2600 m	
Moab Khatsong	in commissioning	3000 m	3410 m
Mponeng		2500 m	3200 m
Savuka		3771 m	3900 m
Tau Tona		3400m.…….	4200 m

Sub level vary between 80 to 200m

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2 - Which mining method is currently applied?

Creating access to the ore body use a vertical or decline shaft sunk deep into the ground after which horizontal development takes place at various levels of the main shaft or decline.

To remove ore by mining or breaking ore body use drilling holes and blasting followed by bated stopes cleaning.

The ores released is transported horizontally and vertically including loco, conveyors and skips system on surface and reach treatment plants by conveyors

3 – What is the degree of mechanization?

Vary from High, medium to Low

4 – Describe the operational chain of production? (Circuit and specific operation tasks)

The process of producing gold include: finding the ore body, creating access to the ore body; removing the ore by mining and breaking the ore body, transporting the broken material from the mining face to the plants for treatment; processing and refining

5 – Average production per day, year?

Annual production 2006:

Mine unit	Attributable tons milled	Attr gold production (oz)
Great Noligwa	2400000	615000
Kopanang	2000000	446000
Tau Lekoa	1500000	113000
Mponeng	1900000	596000
Savuka	0.400000	89000
Tau Tona	2000000	474000
Surf operations	72000000	113000
TOTAL		2,554,000

6 – Average energy bought (paid) daily, monthly and annually?

Annually an average of35000000000 KWh

7 – Energy source type used by each mining operation activity if possible (Electricity, Diesel, Hydropower)?

Electricity and Diesel……

8 – The pea (amount and period) achieved in energy consumption daily, and monthly per source type?

Monthly peak for electricity vary from one mine to an other but globally peak was recorded in February with 7705000000 KWh

9- Global annual 2006 figures showing the amount of energy consumed per mining operational unit including:

	Great Nol	Kopanang	Moab Kothsong	Tau Lekoa	(%)
Prod (Min inc	24642759		4824192	1964262	
Hoisting	54396143		38086335	47344575	
Ventilation	804149870	63774026	32727489	41205434	
Refrigeration	14008538		35409053		
Pumping	50032267		6070485	26359098	
Compression	17288012		4698199	18110497	
SARBS SS	2817444		720308	2459274	
Sub total	319000000		236000000	146000000	
Smelting	11887039	30138671			
Refining					

10 – What are the energy intensive areas and activities?

Ventilation, and refrigeration, Pumping, Smelting.

11 – What is the load (charge) allocated in auxiliary services?

About 55 % of total amount

12 - What is the power factor used for electricity in the mine and average price per KWh of electricity?

Ore than 0.92

13 – Average material handled (ore, waste) per shift, day and month?

Reference section five

14 – Average ore grade per tonne produced?

5.6 to 7.5 g/t

15 – Is processing undertaken on mine site or far away and at which distance?

Vary with a specific mine