

ANGLO AMERICAN PLATINUM CORPORATION

ANNUAL FACILITY VISIT

1 March 2002

WESTERN BUSHVELD OPERATIONS

**Peter Kinver
Divisional Director:
West Mines**

- 
- **Safety**
 - **Current performance**
 - **Key issues**

SAFETY

We are making progress :

- **A reduction in fatality rate (FR) and Lost Time Injury Frequency Rate**
FR = 0.03 (Last year 0.04)
LTIFR = 2.95 (3.75) Target 2002 =1.4
- **Rates compare favourably to platinum and gold industry.**
- **Behavioural based safety / continuous business Improvement.**
- **Mechanisation (quantum improvement)**

RUSTENBURG SECTION

- A good operational year – cost increase / Pt oz refined– 2.0%
- Expansion phase – despite Merensky slow depletion
- Exploit the shallow massive UG2 reserve
- Take current production from 1.123m oz (4E) to ± 1.5 moz (4E)
- Restructured management, greater focus and accountability
- Reduce and dilute fixed central costs and maintain a good cost performance
- Infrastructure investment (shafts, haulages, rolling stock etc)
- Mechanisation – productivity/costs (it's working i.e. labour as total % of cost is decreasing)

MECHANISATION

- Long term view
- Engaged supplier
- Extensive R & D
- Phased implementation
- Wide ranging benefits

UNION SECTION

- Reinforced management team
- Infrastructure bottlenecks being fixed
- Cost controls working – big manpower reduction
- Good quality Merensky – grade improved
- Better performance this year

BAFOKENG-RASIMONE

- Team in place – HRD
- Accelerated development programme
- North of mine – complex geology; however, deeper and southern ore – good quality
- Mining and milling rates building up
- During the year will be up to design throughput
- Trackless Merensky – started. Looks promising

AMANDELBULT SECTION

- An excellent performance
- Tonnage/grade and recovery up
- Costs well controlled
- Started mechanisation in shallow UG2
- Exciting safety initiatives
- Synergy with neighbouring mines

CONCLUSION

- **Solid base production**
- **Expansion in place and delivering**
- **Continuous Business Improvement paying off**

WATERVAL PROJECT

Peter van Dorssen
Business Manager

AGENDA

- **Safety**
- **Waterval as component of RPM(R)**
- **Mining overview**
- **Concentrator overview**
- **Key benefits**

SAFETY REPORT TO DATE

	2001	Ytd	Cumulative
Total Man Hours	3 089 030	392 986	3 482 016
Shifts Worked	386 129	49 123	435 252
Non Lost Time Injuries	44	0	44
Lost Time Accidents (One Day or More)	3	0	3
Serious Injuries (14 Days or More)	1	0	1
Fatal Accidents	0	0	0

WORLD CLASS SAFETY ACHIEVEMENTS



- **Cementation Mining:**
 - 4 Star NOSA grading
 - Won competition for highest 4 star grading mine in the Bushveld region
 - 365 injury free days (18 March 2002)
- **Concor/Group Five Civil Joint venture:**
 - 5 star grading from MBA during safety audit
 - Won regional and national competition for the best safety system audited by MBA

WATERVAL PROJECT

- **Announced in September 2000**
- **Brakspruit, Bleskop and Paardekraal vertical shafts – 200 000 tpm**
- **Waterval Mine – 200 000 tpm**
- **UG2 concentrator – 400 000 tpm**
- **Capital cost R1,310 bn (2000 terms)**

WATERVAL MINE

KEY FEATURES

- 200 ktpm of UG2 ore
- Two mining sections (East & Central)
- 3 dip roadways/ shaft, changing to 5
- Room and pillar mining method
- 20 LHD's and 14 drill rigs
- Each shaft to be developed 420m on dip
- Full production from 3 strike levels/ shaft
- 20 months construction to get to full production (December 2000 to June 2002)

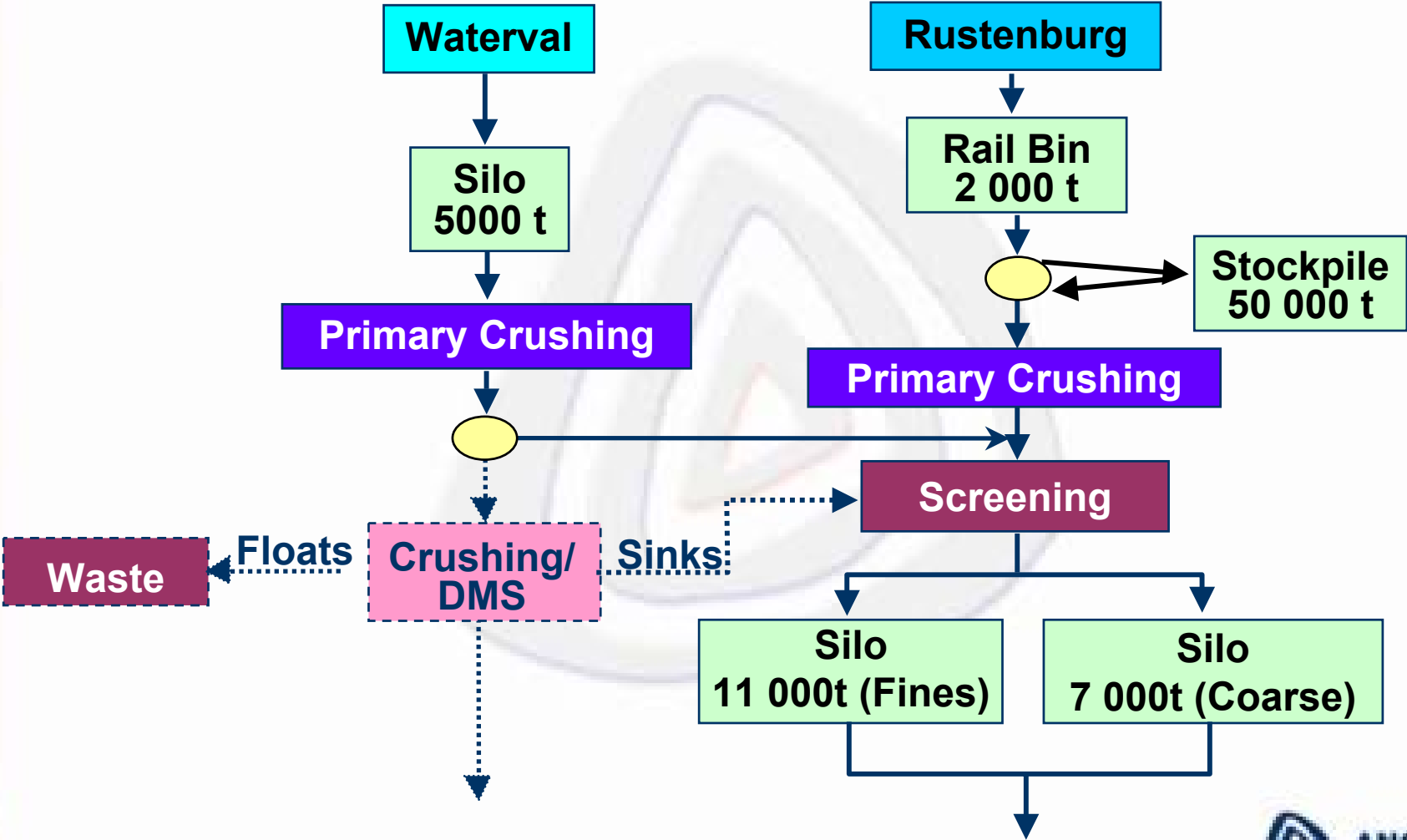
GEOMETRY

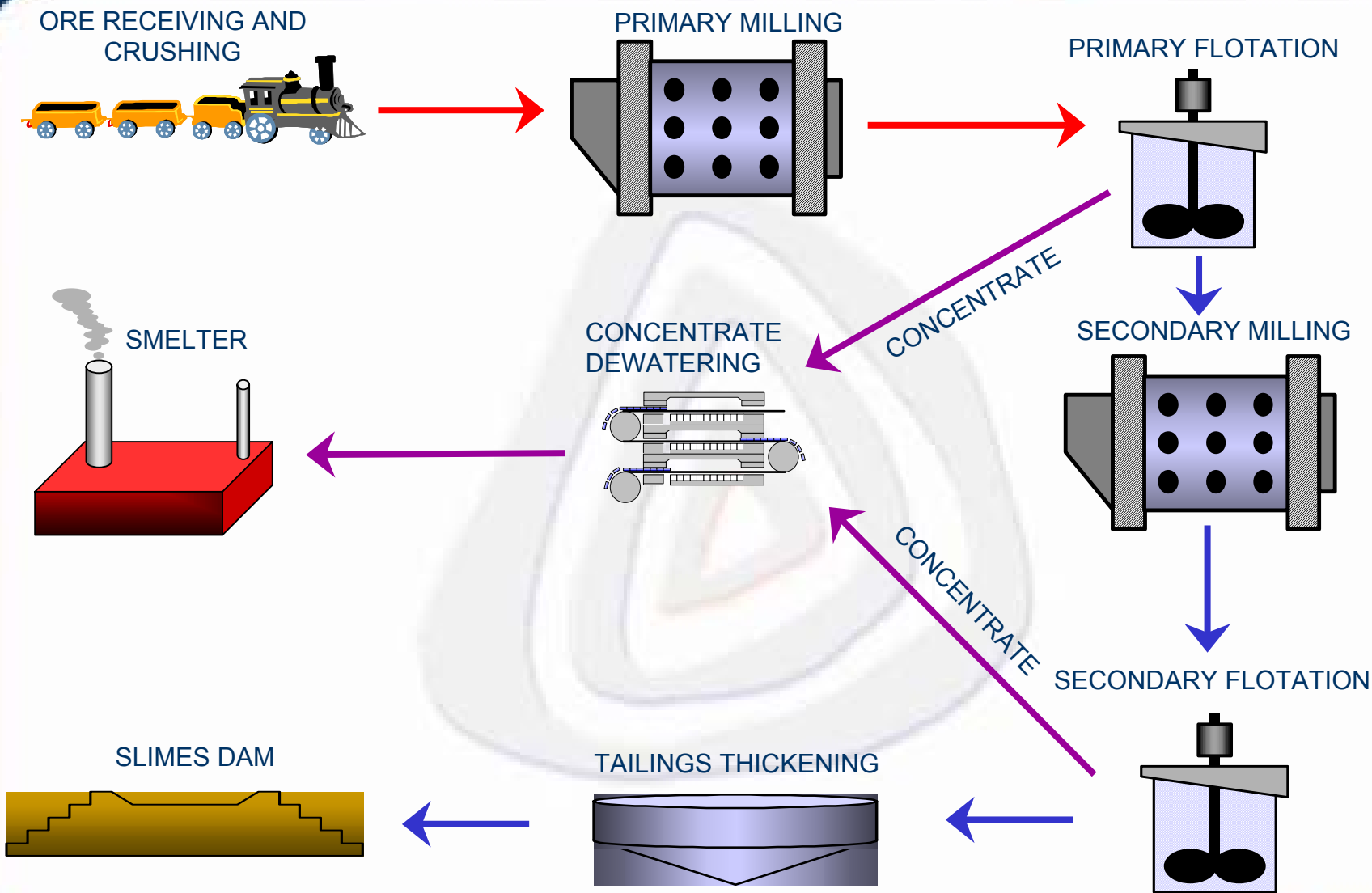
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- Reef dip 9°
 - Mining width 1,8 m
 - Relative density (reef) 3,34 tons/m³
 - Steady state production 268 000 tons

SALIENT POINTS

- **Earthworks:** 776 000 m³ incl rock
- **Civils:** 30 000 m³
- **Steelwork:** 3 400t
- **Platework:** 750t
- **Piping:** 60km

400 KTPM UG2 CONCENTRATOR FLOW SHEET





WATERVAL MINE KEY BENEFITS

- **Shallow UG2**
- **Dedicated UG2 Concentrator**
- **Mechanised mining**
- **High efficiencies**

ANGLO PLATINUM CONVERTING PROCESS (ACP)

Keith Hines – Plant Manager

STRATEGY '95

- Increasing regulatory pressure
- Historical role of SO₂ in environmentalism
- Worldwide trends in smelter technology
- Make virtue of necessity
 - Improve technology
 - Better process
 - Lower costs
 - Solve problem
 - No “Bandages”

STRATEGY NOW

- Production expanding
- Regulatory pressure here
- External interest focus
 - Local environment
 - Regulators
 - International groups
 - Anglo American plc

STRATEGY NOW

- **Decouple furnace / converting operations**
- **Creates**
 - **Operational flexibility**
 - **Siting flexibility**

PROJECT DESIGN CRITERIA - ENVIRONMENTAL

- **Reduce sulphur emissions**
 - Current situation = 130 tpd SO₂
 - DEAT requirements < 20 tpd SO
- **Implications**
 - Acid plant downtime = Smelter downtime
 - Collection and treatment of converter and furnace off-gas
 - New acid plant technology
 - Improved containment
 - Process robustness

PROJECT DESIGN CRITERIA - ENVIRONMENTAL

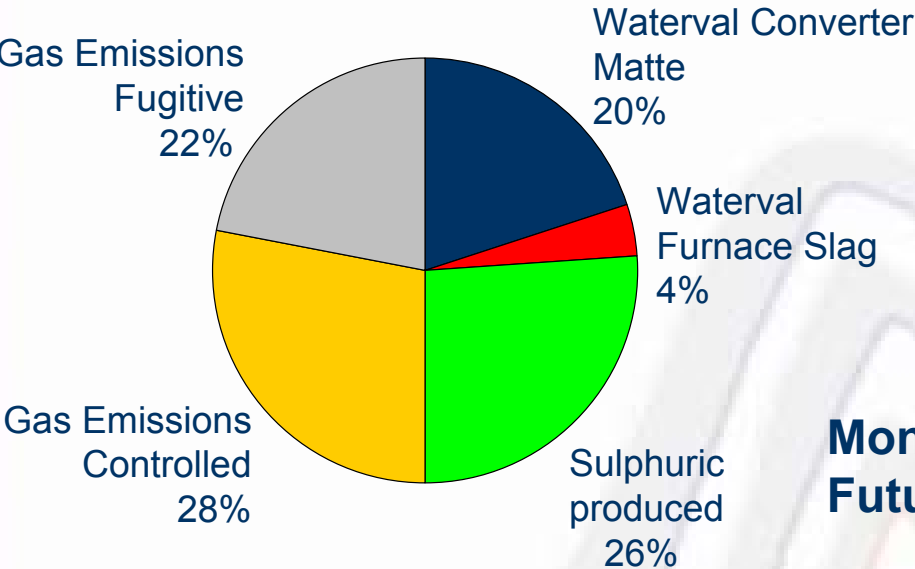
- Hourly SO₂ ground level concentrations (GLC) exceedences < 2 per year
- Implications
 - Collection of substantially all secondary off-gas sources and emit via stack(s)
 - Improved containment at source

PROJECT DESIGN CRITERIA - PROCESS

- Increase capacity for future production forecasts

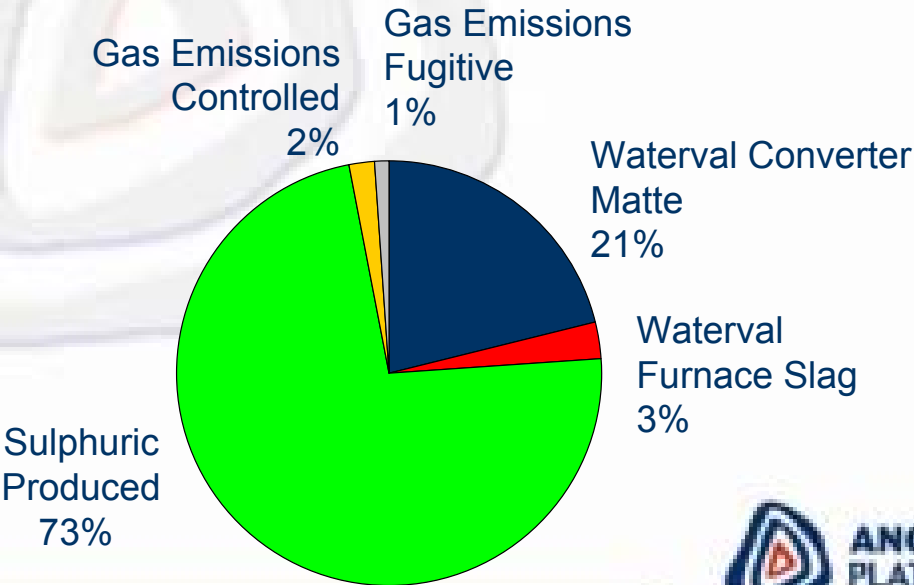
Material		Annual Capacity (tpa)
	Minimum	Production Design
Waterval Furnace Matte (WFM)	122 000 tpa	186 000 tpa
Union Furnace Matte (UFM)	26 800 tpa	26 800 tpa
Nickel in Cathode	21 000 tpa	30 000 tpa
Platinum Production *	~2.1 million oz	~3.6 million oz

Monthly Average Output of Plant for '99



PRESENT DESIGN

Monthly Average Output of Plant for Future Design



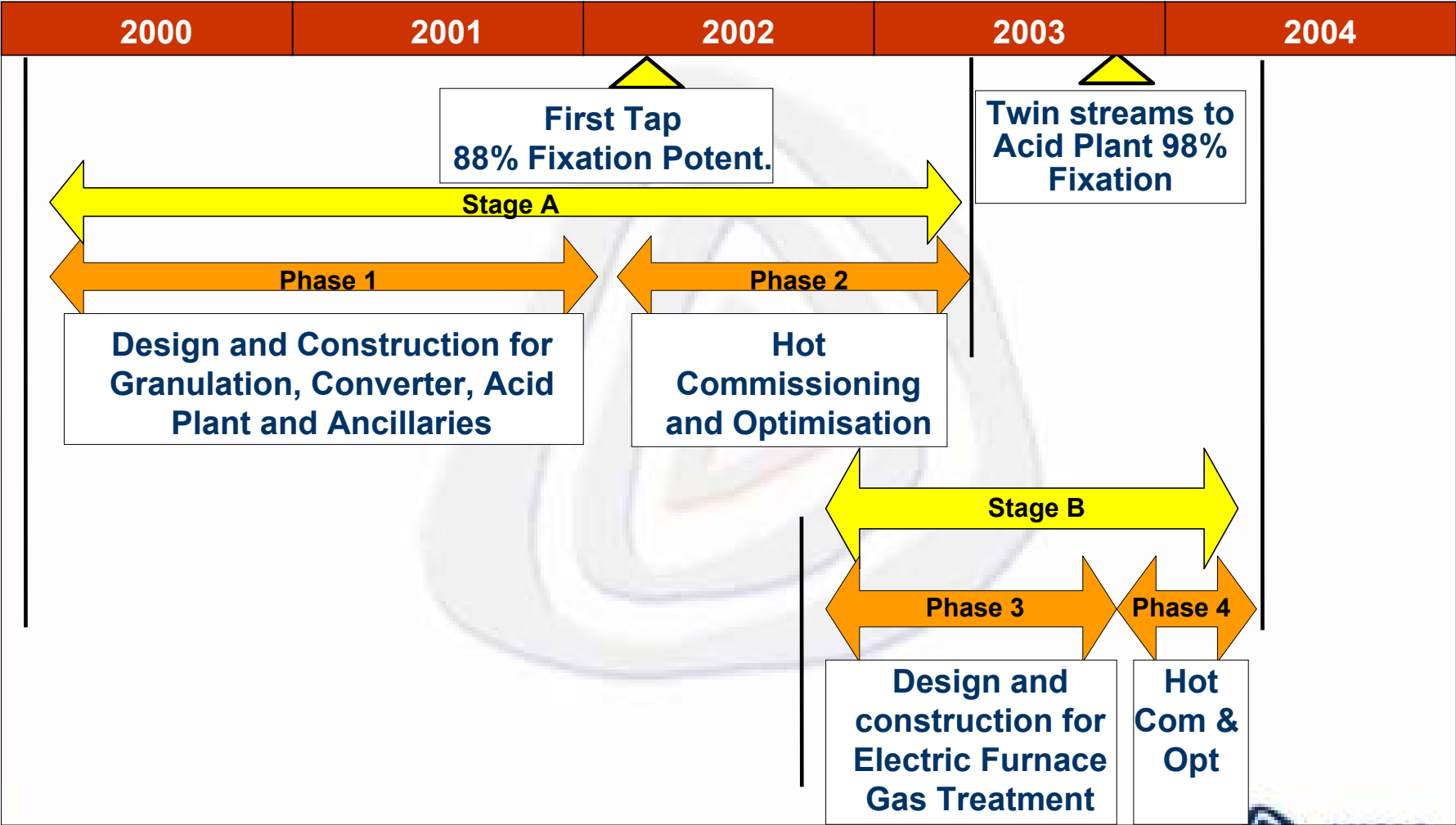
FUTURE DESIGN

Numbers have been rounded to the nearest whole number

COMPARATIVE OPERATIONAL COMPLEXITY

	PIERCE SMITH	ACP
No. of Units	3 Running, 1 Hot S/by 2 Rebuilding	1 Running 1 S/by within 7 Days
Capacity	2.3 million Pt oz	3.5 million Pt oz
Cycle Time/End Pt	7 hrs - 12 hrs (ave)	3 hrs (min) O2 Enrich. 3% $\pm$ 0.5% Fe 22% $\pm$ 0.2% S
Feed Material	Molten Waterval Furnace Matte and Cold UFM	Granulated Matte Multi furnace feed

PROJECT TIMETABLE



PROJECT BENEFITS

- **Meets environmental emission requirements**
 - sustainable development
- **Maximises economic recovery**
- **Provides scope to satisfy Anglo Platinum's short and medium term expansion goals**

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