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Uranium Exploration, Resources and Production in South Africa 2009

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Nuclear Fuel Cycle

South African Nuclear Energy Corporation

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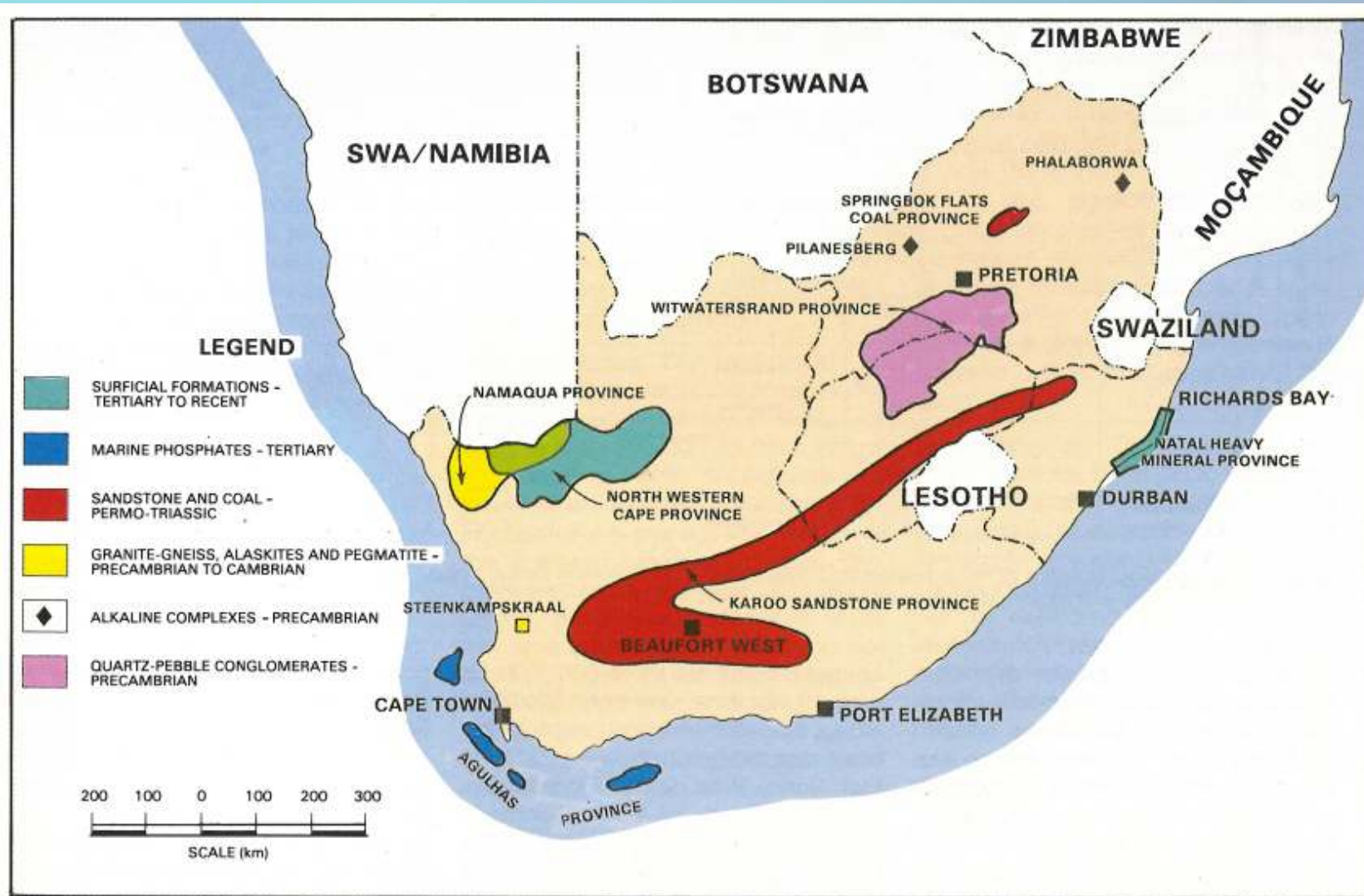
INTRODUCTION

- Manhattan Project investigators visit South Africa 1944
- Formation of the Atomic Energy Board (AEB) in 1948
- Geology Dept formed to assess and monitor uranium resources
- First uranium production in 1952
- Formation of the Atomic Energy Corporation (AEC) in 1983
- AEB & AEC reported to Red Book till 1999
- Formation of the Nuclear Fuel Cycle Dept in 2007

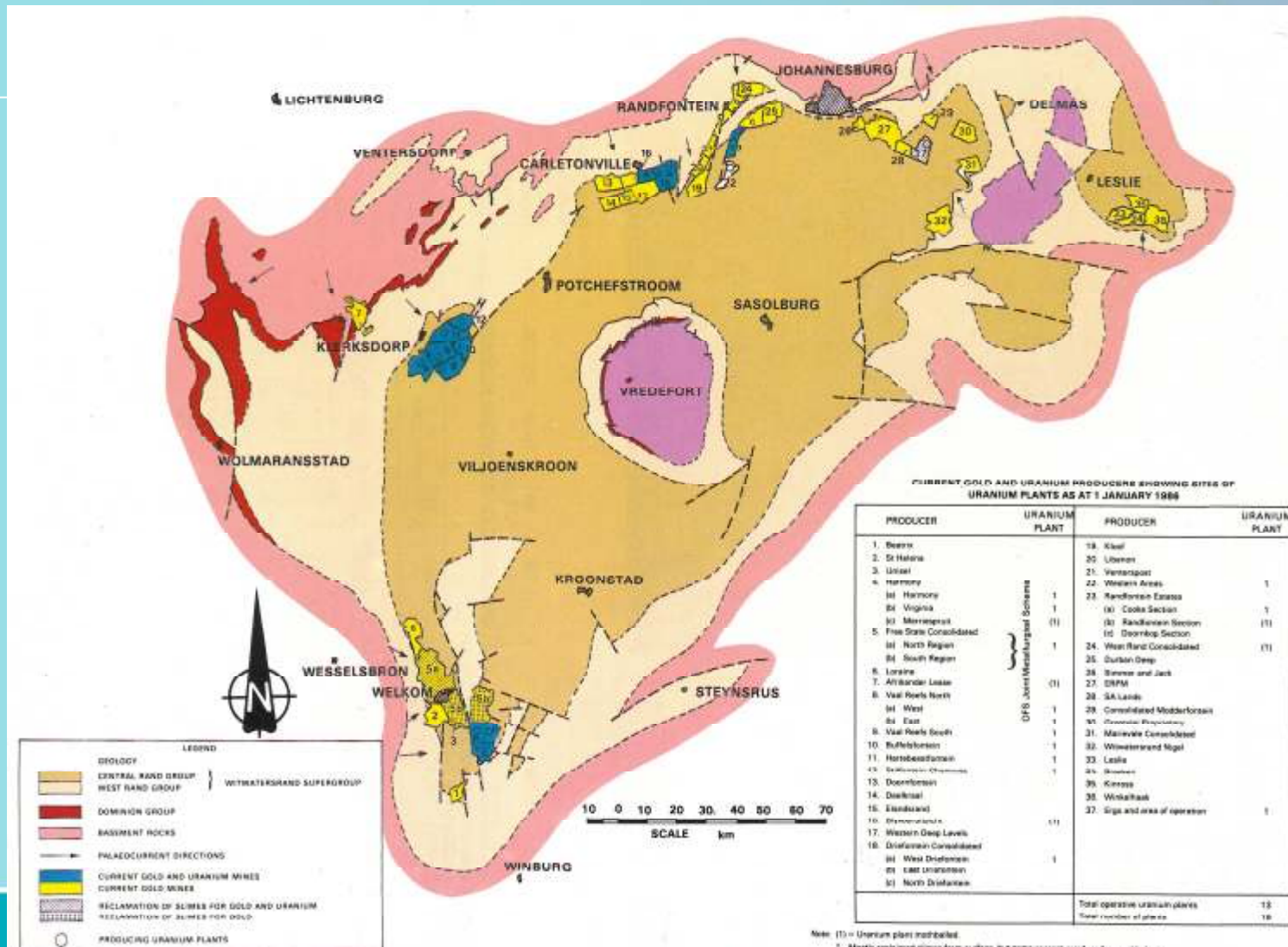
DEPOSIT TYPES

- Quartz-pebble conglomerate
- Karoo sandstone
- Karoo coal
- Alkaline complexes
- Surficial deposits
- Heavy mineral sands
- Alaskites and granites
- Marine phosphates

SOUTH AFRICAN URANIUM PROVINCES



WITWATERSRAND BASIN



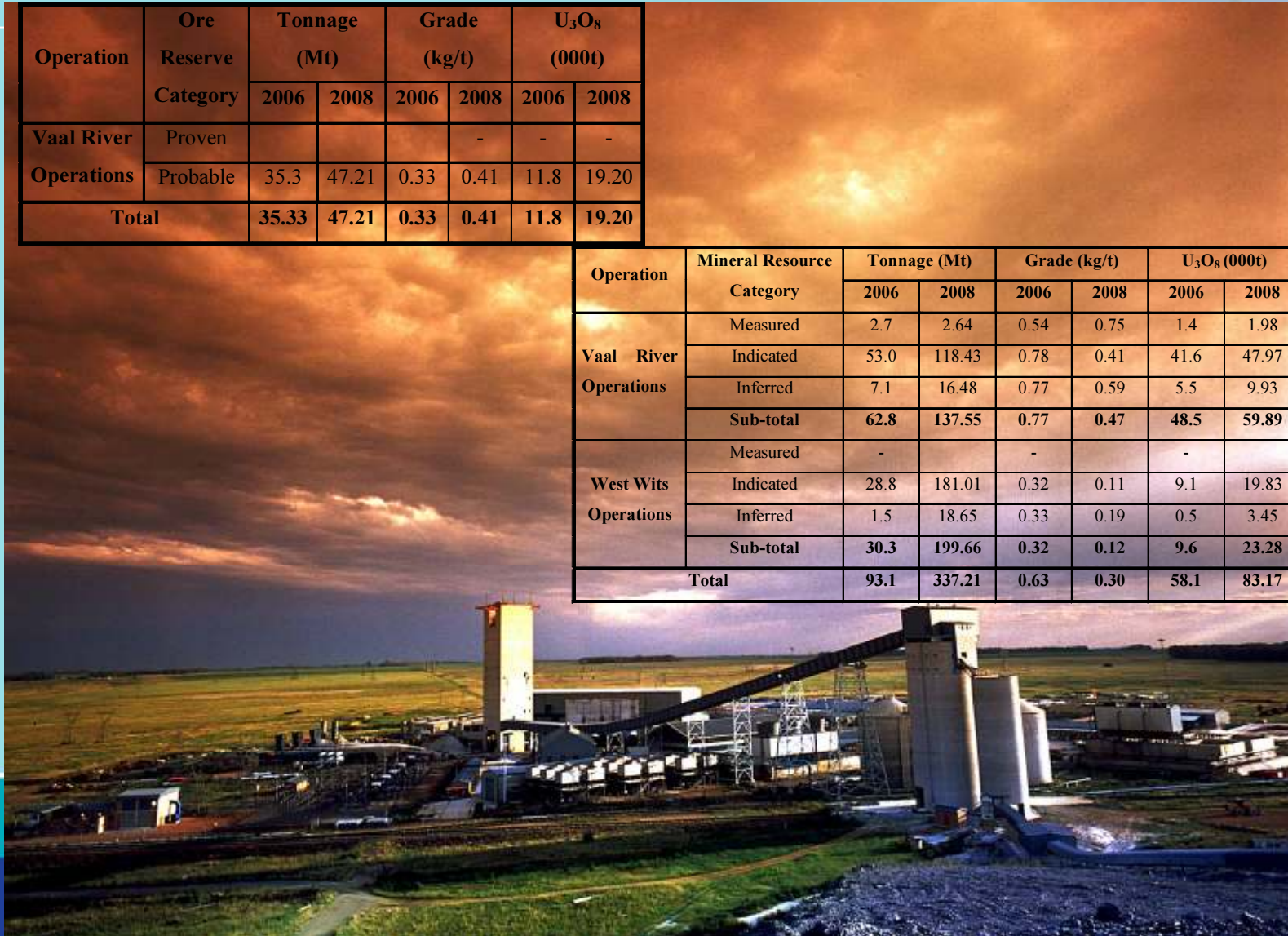
EXPLORATION

- Virtually no “greenfields” exploration
- Extensions to Known Orebodies
 - AngloGold Ashanti – Vaal River Operations
 - Uranium One – Dominion Reef Uranium Mine (care & maintenance)
 - First Uranium – Ezulwini Mine
 - Mintails – old West Rand Cons Mine
- Tailings Dams
 - First Uranium – Mine Waste Solutions
 - Mintails – West and East Rand
 - Rand Uranium – Randfontein Estates Mine
 - Gold Fields – West Wits Mines (14 dams investigated)
- Known non-Wits Mineralisation
 - Uramin, Brinkley Mining and Signet – Karoo sandstones
 - Holgoun Investments – Coal-hosted
 - Niger Uranium – Surficial
 - Acclaim Exploration – Mozaan quartz-pebble conglomerates

AngloGold Ashanti

Operation	Ore Reserve Category	Tonnage (Mt)		Grade (kg/t)		U ₃ O ₈ (000t)	
		2006	2008	2006	2008	2006	2008
Vaal River Operations	Proven				-	-	-
	Probable	35.3	47.21	0.33	0.41	11.8	19.20
Total		35.33	47.21	0.33	0.41	11.8	19.20

Operation	Mineral Resource Category	Tonnage (Mt)		Grade (kg/t)		U ₃ O ₈ (000t)	
		2006	2008	2006	2008	2006	2008
Vaal River Operations	Measured	2.7	2.64	0.54	0.75	1.4	1.98
	Indicated	53.0	118.43	0.78	0.41	41.6	47.97
	Inferred	7.1	16.48	0.77	0.59	5.5	9.93
	Sub-total	62.8	137.55	0.77	0.47	48.5	59.89
West Wits Operations	Measured	-		-		-	
	Indicated	28.8	181.01	0.32	0.11	9.1	19.83
	Inferred	1.5	18.65	0.33	0.19	0.5	3.45
	Sub-total	30.3	199.66	0.32	0.12	9.6	23.28
Total		93.1	337.21	0.63	0.30	58.1	83.17



First Uranium

Project	Mineral Reserve Category	Tonnage (Mt)	Grade (kg/t)	U ₃ O ₈ (000t)
Mine Waste Solutions	Proven	99.40	0.08	8.31
	Probable	226.0	0.07	16.53
	Total	325.4	0.08	24.84



Project	Mineral Resource Category	Tonnage (Mt)		Grade (kg/t)		U ₃ O ₈ (000t)	
		2007	2009	2007	2009	2007	2009
Mine Waste Solutions	Measured	69.48	99.4	0.097	0.08	6.77	8.31
	Indicated	228.56	235.7	0.065	0.07	14.88	16.98
	Inferred	64.66	21.2	0.098	0.10	6.33	2.16
	Sub-total	362.70	356.3	0.077	0.08	27.98	27.45
Ezulweni	Measured	2.45	1.52	0.72	0.67	1.77	1.02
	Indicated	1.37	2.87	0.95	0.77	1.31	2.22
	Inferred	132.10	112.81	0.75	0.74	99.27	92.62
	Sub-total	135.92	117.20	0.75	0.74	102.35	95.86
Total		498.62	473.50	0.26	0.24	130.33	123.31

Uranium One and Mintails Resources

Mintails

Project	Mineral Resource Category	Tonnage (Mt)		Grade (kg/t)		U ₃ O ₈ (000t)	
		2006	2008	2006	2008	2006	2008
West Rand	Measured		40.58		0.050		2.02
	Indicated		97.45		0.048		4.65
	Inferred		139.43		0.036		4.93
	Sub-total		277.46		0.042		11.60
East Rand	Measured		171.1		.033		6.76
	Indicated	138		.048		6.67	
	Inferred	185		.038		7.07	
	Sub-total		171.1		0.033	13.74	6.76
Total		323	448.56		0.039	13.74	18.36



Uranium One

Resource Category	Reef Unit	Tonnage (000t)	U ₃ O ₈ Grade (kg/t)	U ₃ O ₈ (000t)
Indicated	Rietkuil Upper	11.22	0.86	9.66
	Rietkuil Lower	2.05	0.76	1.56
	Dominion Upper	13.74	0.74	10.23
	Dominion Lower	9.38	0.86	8.05
	Dominion Dumps	3.38	0.16	0.54
	Total Indicated		39.77	0.76
Inferred	Rietkuil Upper	48.33	0.55	26.73
	Rietkuil Lower	44.83	0.42	18.95
	Dominion Upper	71.66	0.32	22.87
	Dominion Lower	54.55	0.27	14.93
Total Inferred		219.38	0.38	83.47
Total Resources		259.15	0.44	113.51

Other Companies

- Rand Uranium – Feasibility study in progress
- Gold Fields – Feasibility study in progress
- Holgoun Investments – Investigating Springbok Flats deposits
- Uramin – Investigating the Rystkuil Channel, Karoo
- Brinkley Mining – Investigating Karoo deposits
- Signet Mining – Investigating Karoo deposits
- Niger Uranium – Investigating Henkries surficial deposit
- Acclaim Exploration – Investigating Denny Dalton Mine

Published South African Uranium Reserves and Resources

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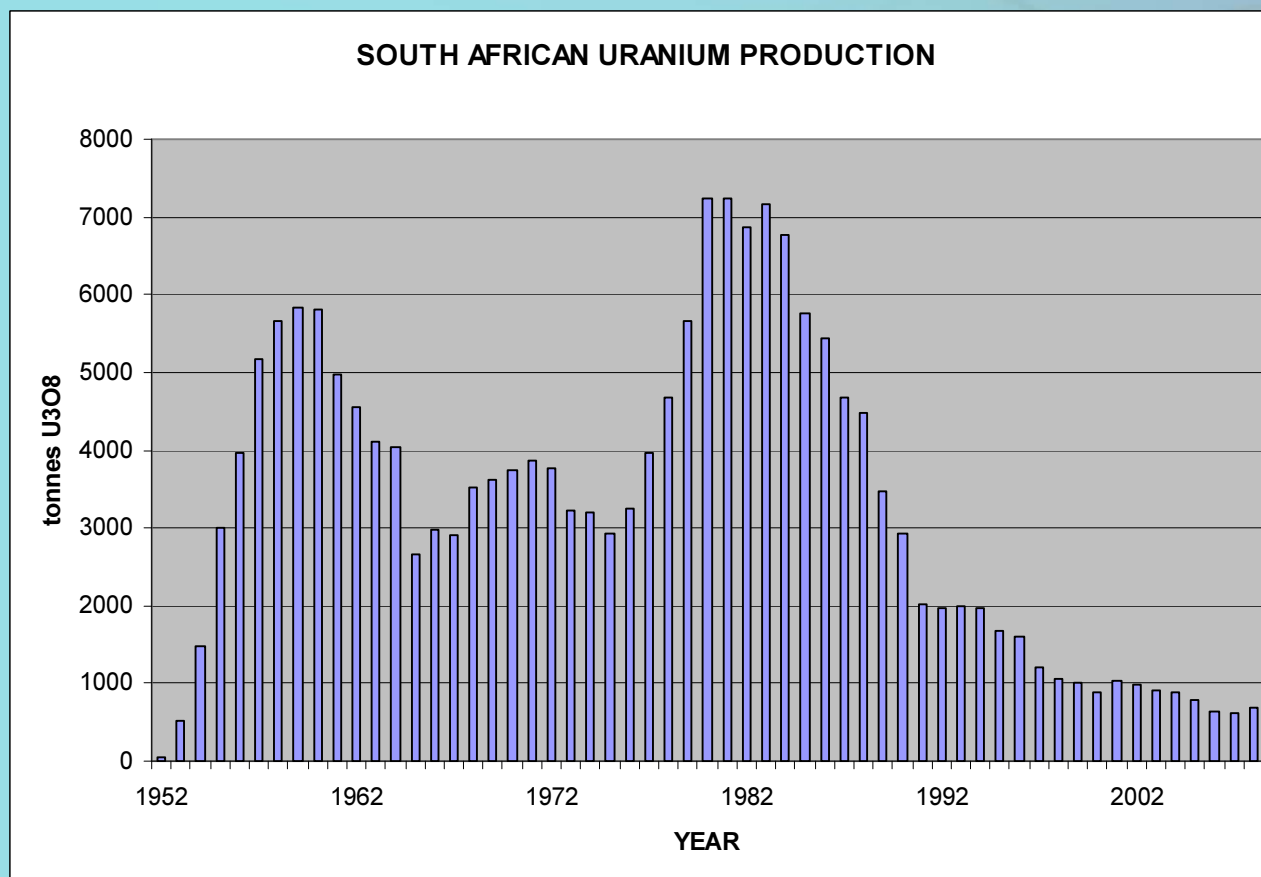
CATEGORY	COMPANY				TOTALS 000t U ₃ O ₈
	AngloGold Ashanti	Uranium One	First Uranium	Mintails	
RESERVES 000t U ₃ O ₈					
Proven	-	-	-	-	-
Probable	11.80	14.24	-	-	26.04
Total Reserves	11.80	14.24	-	-	26.04
RESOURCES 000t U ₃ O ₈					
Measured	1.40	-	8.54	-	9.94
Indicated	50.70	30.04	16.19	6.67	103.60
Inferred	6.00	83.47	105.60	7.07	202.14
Total Resources	58.10	113.51	130.33	13.74	315.68

2009

CATEGORY	COMPANY				TOTALS 000t U ₃ O ₈
	AngloGold Ashanti	Uranium One	First Uranium	Mintails	
RESERVES 000t U ₃ O ₈					
Proven	-	-	8.31	-	8.31
Probable	19.20	-	16.52	-	35.72
Total Reserves	19.20	-	24.84	-	44.03
RESOURCES 000t U ₃ O ₈					
Measured	1.98	-	9.33	8.78	20.09
Indicated	67.80	30.04	19.20	4.65	121.69
Inferred	13.39	83.47	94.73	4.96	196.55
Total Resources	83.17	113.51	123.26	18.39	338.33

- Reserves have increased by 69 %
- Resources have increased by 7%
- Both should increase significantly when Rand Uranium and Gold Fields feasibility study results are announced.

South African Uranium Production



Historical Production

- Major producer since 1952 when 1st plant started
- Peak of 4950 tU in 1960 for West's military needs
- 6146 tU in 1980 – third after USA and Canada
- 13 Mines producing uranium in 1980
- Many mines ceased production in 80s and 90s
- Only one mine still producing uranium by 2002
- Single remaining U plant produced 534 tU in 2006
- SA declined to 11th in world production in 2006

Future Production Plans

- AngloGold Ashanti - Refurbished uranium plant and doubling capacity.
- Dominion Reef - Care & maintenance, up for sale
- First Uranium - One plant producing yellowcake. The second in 3 to 6 months
- Mintails - Plans slowed. Not before 2012
- Rand Uranium - Feasibility study. 2012 if favourable
- Gold Fields - Feasibility study. 2013 if favourable

Future South African Uranium Production

COMPANY	2008	2009	2010	2011	2012
AngloGold Ashanti	650	950	1 250	1 250	1 250
Uranium One	90	?	?	?	?
First Uranium		350	650	850	1 050
Rand Uranium					250
TOTAL (t U₃O₈)	740	1 300	1 900	2 100	2 550



Nuclear Energy Policy for South Africa

- Exercise control over un-processed uranium ore for export purposes for the benefit of the South African economy
- South Africa shall endeavour to **use uranium resources in a sustainable manner**
- Government shall be responsible for:
 - Acquiring and managing strategic uranium stockpiles
- Government shall ensure that the exploitation of our mineral resources and the securing of a long term supply of these resources is balanced in a sustainable fashion.
- The South African Nuclear Energy Corporation (NECSA) shall be encouraged to participate in the uranium value chain, beneficiation thereof and will be responsible for storing of uranium supplies acquired by the State.

CONCLUSIONS

- South Africa has enough uranium to supply its own needs for the foreseeable future
- Planned production will be well in excess of projected requirements
- Stockpiling may become necessary to ensure security of supply
- Studies are underway

THANK YOU

Any questions?