

Resource Centre
Policy Branch
Dept. of Minerals & Energy



ROYALTIES AND STATISTICS BRANCH

**STATISTICAL DIGEST OF
MINERAL PRODUCTION
1986/87**



**DEPARTMENT OF MINES
WESTERN AUSTRALIA**



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COMPILED BY:

ROYALTIES AND STATISTICS BRANCH

DEPARTMENT OF MINES
MINERAL HOUSE
66 ADELAIDE TERRACE
PERTH WA 6000

TELEPHONE: 222 3333

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ABBREVIATIONS

cons.	concentrates	f.o.t.	free on truck
f.o.b.	free on board	n.a.	not available
f.o.r.	free on rail	Inf.	infinity

REFERENCES

- (a) Value based on the average Australian value of alumina as published by the Bureau of Mineral Resources in the Australian Mineral Industry Review.
- (b) Value at works.
- (c) Estimated f.o.b. value.
- (d) Estimated f.o.r. value.
- (e) Estimated f.o.b. value based on the current price of nickel containing products.
- (f) Nett well head value.
- (g) Value based on the price per barrel as assessed by the Commonwealth for crude oil at Kwinana.
- (h) Value at pithead.
- (i) Nominal Price at Wellhead

UNITS AND CONVERSION FACTORS

	Metric unit	Symbol	Imperial unit	Conversion factors	
				Multiply imperial unit by	Multiply metric unit by
Mass	gram	g	troy (fine) ounce (oz)	31.1035	0.0321507
	kilogram	kg	pound (lb)	0.453592	2.20462
	tonne	t	long tonne (2240 lbs)	1.01605	0.984207
	tonne	t	short tonne (2000 lbs)	0.907185	1.10231
Volume	kilolitre	kL	barrel (bbl)	6.29	0.159

SUMMARY

The total value of mineral production in Western Australia for the year 1986/87 is estimated at \$5 950.50 million, an increase of \$632.8 million over the previous financial year.

Iron Ore production decreased by 8.8% to 78.0 million tonnes, however it continued to be the major mineral commodity in the State making up 32% of the the total value of mineral production.

Major minerals to record significant increases in production during the year were:

- diamonds up 84.1% to 32.2 million carats due to the first full financial year of production from the AKI Kimberlite Pipe;
- gold up 40.2% to 64,911 kilograms due to the continued buoyancy in the industry with several new developments and continued expansion from existing mines;
- Petroleum products due to a steady increase in output from the Harriet and the North West Shelf projects.

In addition to diamond and gold, both of which contributed a corresponding increase in value as a result of production expansion, significant increase in prices for coal and heavy mineral sands were major factors in the value of production.

State royalty revenue decreased by \$6.70 million to \$156.3 million over the previous financial year reflecting the 9% drop in Iron Ore receipts and 7% decrease in crude oil royalty. Significant increases in royalty came from Diamond and Salt with rises of 358% and 35% respectively.

Mineral	Units	Production		% up (% down)
		1985/86	1986/87	
Alumina	Mt	5.4	5.7	5.5
Coal	Mt	3.8	3.8	0.8
Diamond	M carats	17.5	32.2	84.1
Gold	t	46.3	64.9	40.2
Iron Ore	Mt	85.5	78.0	(8.8)
Mineral Sands:				
Ilmenite	Kt	1 050.1	1 038.9	(1.1)
Leucoxene	Kt	19.0	12.6	(33.7)
Monazite	Kt	18.0	12.4	(30.9)
Rutile	Kt	71.8	82.5	14.9
Zircon	Kt	349.0	310.6	(11.0)
Nickel Conc.	Kt	455.2	406.3	(10.7)
Nickel Ore	Kt	45.9	59.3	29.0
Petroleum				
Condensate	ML	381.3	512.4	34.4
Natural Gas	Mm ³	2 756.1	3 199.2	16.1
Oil	ML	1 430.2	1 574.7	10.1
Salt	Mt	4.8	5.1	4.9

Figure 1

VALUE OF PRODUCTION FOR MAJOR MINERALS

1986/87 VALUE : \$ 5950 MILLION

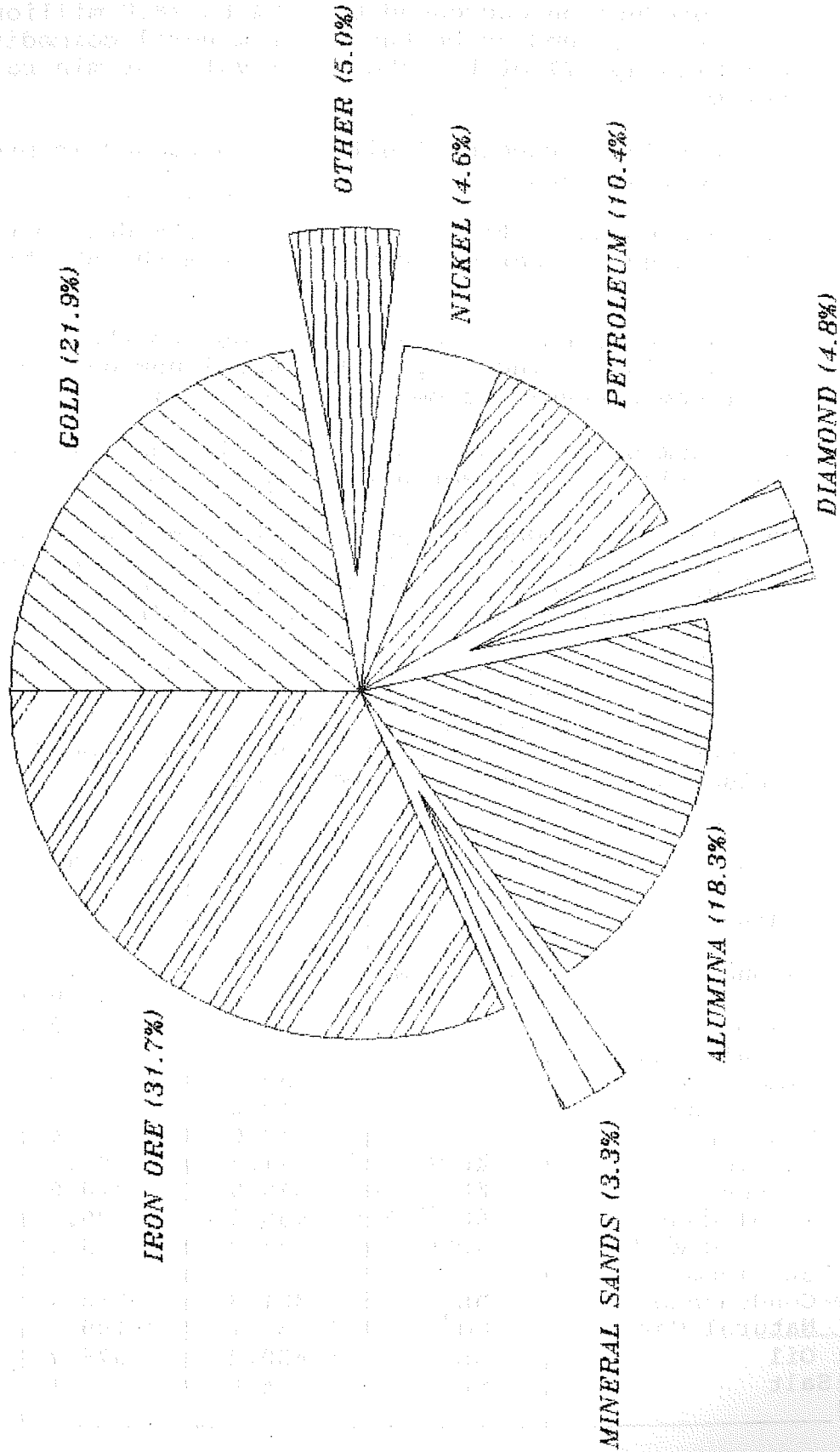


TABLE 1
QUANTITY AND VALUE OF MINERALS 1985/86, 1986/87

Mineral	Unit Quantity	1985/86		1986/87	
		Quantity	Value (\$A)	Quantity	Value (\$A)
Alumina	tonne	5 430 555	1 029 283 528	5 727 327	1 090 879 157
Building Stone					
black granite	t	145	45 000	585	50 000
quartz	t	2 233	100 481	1 861	83 755
Clay					
attapulgitite	t	41 885	n.a.	10 458	n.a.
cement clay	t	23 131	57 828	23 991	59 969
fire clay	t	242 489	292 015	208 895	252 326
kaolin	t	4 600	188 422	7 460	241 564
white clay	t	126 899	372 318	72 176	209 528
Coal	t	3 765 045	n.a.	3 795 055	n.a.
Cobalt	t	515	9 230 525	463	4 012 332
Construction Material					
aggregate	t	117 255	744 055	100 816	581 430
gravel	t	6 379	16 098	22 365	28 965
rock	t	46 524	92 686	116 222	787 560
sand	t	886 091	1 660 770	1 271 826	3 786 995
sandstone	t	-	-	20	40
Copper	t	3 484	4 162 432	3 519	4 106 685
Copper Concentrate	t	44 468	9 700 345	-	-
Diamond	carat	17 472 460	147 567 905	32 164 524	284 094 805
Diatomite	t	1 638	8 450	401	2 006
Dolomite	t	330	2 310	243	3 162
Emerald	gram	225	1 685	200	1 784
Felspar	t	10 104	118 452	4 405	68 814
Garnet Sand	t	8 166	285 810	12 122	427 334
Gold	kilogram	46 287	710 655 104	64 911	1 300 079 190
Gypsum	t	348 639	3 908 872	233 404	2 673 698
Iron Ore	t	85 513 414	1 965 666 843	78 026 315	1 888 998 210
Kyanite	t	249	29 817	955	153 220
Limestone	t	206 289	1 088 735	194 895	1 251 642
Mineral Beach Sand					
ilmenite	t	1 050 131)		1 038 922)	
reduced ilmenite	t	-)	59 817 919	53)	78 836 361
upgraded ilmenite	t	57 818)		61 178)	
leucoxene	t	19 002	6 219 583	12 606	5 140 988
monazite	t	17 962	10 384 934	12 407	8 417 755
rutile	t	71 794	30 751 960	82 462	46 089 968
xenotime	t	25	345 693	43	328 846
zircon	t	349 030	48 356 864	310 576	56 297 397
Nickel Concentrate	t	455 155	313 472 129	406 321	264 726 489
Nickel Ore	t	45 937	8 490 324	59 257	10 065 723
Palladium	kilogram	421	2 050 352	490	3 218 062
Peat	t	10 238	441 894	1 641	51 669
Petroleum Products					
condensate	kilolitre	381 287	n.a.	512 434	n.a.
crude oil	kilolitre	1 430 180	311 924 009	1 574 655	262 843 620
natural gas	'000m ³	2 756 065	291 608 694	3 199 165	277 989 304
Platinum	kilogram	94	1 498 493	105	2 645 121
Salt	t	4 814 138	95 326 825	5 051 148	107 382 344
Semi-precious Stone					
amethyst	kilogram	8 988	50 716	51 000	195 500
moss opal	kilogram	21	14	-	-
tiger eye	t	54	50 214	-	-
Silica Sand	t	377 009	n.a.	371 165	n.a.
Silver	kilogram	41 135	10 705 718	11 160	1 971 953
Spodumene	t	12 690	2 967 402	8 221	1 955 601
Talc	t	132 262	n.a.	179 241	n.a.
Tantalite	t	143	4 853 625	108	4 224 365
Tin Concentrate	t	679	6 371 195	731	4 882 698
Vermiculite	t	552	9 034	819	16 388
Zinc Concentrate	t	75 946	20 044 441	-	-
Total Value			5 317 196 704		5 949 989 563

**TABLE 2 QUANTITY AND VALUE OF MINERALS:
SHOWING MINERAL-FIELD AND METALLIC CONTENT.**

Mineral	Mineral-field	Quantity tonnes	Metallic Content	Value (\$)	Ref.
Alumina	South West	5 727 327		1 090 879 157	(a)
Building stone					
black granite	West Kimberley	585		50 000	
quartz	South West	1 861		83 755	
		2 446		133 755	(b)
Clay					
attapulgitic	South West	10 458		NA	
cement clay	South West	23 991		59 969	
fire clay	South West	208 895		252 326	
kaolin	Greenbushes	7 460		241 564	
white clay	South West	72 176		209 528	
		322 980		N.A.	(b)
Coal	Collie	3 795 055		N.A.	
Cobalt (metallic by- product of nickel mining)			Cobalt tonnes		
	Coolgardie		308.639	1 815 734	
	East Murchison		153.904	2 196 598	
			462.543	4 012 332	(c)
Construction Materials					
aggregate	East Coolgardie	73 557		371 927	
	Kimberley	9 860		39 440	
	Pilbara	11 849		137 824	
	West Kimberley	1 876		17 203	
	West Pilbara	3 674		15 036	
		100 816		581 430	
gravel	Pilbara	17 685		17 685	
	West Pilbara	4 680		11 280	
		22 365		28 965	
rock	West Pilbara	116 222		787 560	
sand	Coolgardie	6 893		28 679	
	North East				
	Coolgardie	850		1 700	
	Pilbara	15 407		94 758	
	South West	690 162		1 116 296	
	West Kimberley	30		60	
	West Pilbara	558 484		2 545 502	
		1 271 826		3 786 995	

TABLE 2 QUANTITY AND VALUE OF MINERALS:
SHOWING MINERAL-FIELD AND METALLIC CONTENT - continued

Mineral	Mineral-field	Quantity tonnes	Metallic Content	Value (\$)	Ref.
Construction Materials (Cont)					
sandstone	West Pilbara	20		40	
Total Construction Materials		1 511 249		5 184 990	(b)
Copper tonnes					
Copper (metallic by- product of nickel mining)	Coolgardie		2 408.223	3 023 914	
	East Murchison		1 110.834	1 082 771	
			3 519.057	4 106 685	(c)
Carats					
Diamond	Kimberley		32 164 524	284 094 805	(c)
Diatomite	South West	401		2 006	(d)
Dolomite	South West	243		3 162	(d)
Grams					
Emerald	North Coolgardie		200	1 784	(d)
Felspar	South West	4 405		68 814	(d)
Garnet Sand	South West	12 122		427 334	(d)
Ore treated Estimated Au Kg*					
Gold	State generally	17 726 307	64 911.313	1 300 079 190	
*Includes alluvial, dollied + specimens, gold obtained from tailings retreatment and gold contained in exported gold bearing material.					

TABLE 2 QUANTITY AND VALUE OF MINERALS:
SHOWING MINERAL-FIELD AND METALLIC CONTENT - continued

Mineral	Mineral-field	Quantity tonnes	Metallic Content	Value (\$)	Ref.
Gypsum	Dundas	42 084		629 000	(d)
	Gascoyne	41 721		722 063	(c)
	South West	85 281		892 759	(b), (d)
	Yilgarn	64 318		429 876	(d)
		233 404		2 673 698	

Plaster of Paris reported as manufactured during the year - 45 495 tonnes from 66 989 tonnes of gypsum by two companies.

		Av. Assay Fe %			
Iron Ore					
Ore shipped interstate	Peak Hill	4 341 031	64.00	90 426 332	
	Pilbara	205 890	63.39	5 831 039	
	West Kimberley	1 355 712	66.60	14 879 832	
		5 902 633		111 137 203	
Ore exported overseas	Peak Hill	24 647 515	63.00	617 371 486	
	Pilbara	4 863 979	61.79	115 553 933	
	West Pilbara	40 214 550	61.49	990 494 975	
	West Kimberley	2 268 979	66.71	51 465 045	
		71 995 023		1 774 885 439	
Pellets (exported overseas)	West Pilbara	128 659	63.00	2 975 568	
Total Iron Ore		78 026 315		1 888 998 210	(c)
Kyanite	South West	955		153 220	(c)
Limestone	South West	177 844		1 069 510	
	West Pilbara	17 051		182 132	
		194 895		1 251 642	
					(b)

TABLE 2 QUANTITY AND VALUE OF MINERALS:
SHOWING MINERAL-FIELD AND METALLIC CONTENT - continued

Mineral	Mineral-field	Quantity tonnes	Metallic Content	Value (\$)	Ref.
Mineral Beach Sands			Av. Assay TiO ₂ %		
ilmenite	South West	1 038 922	50.53)	78 836 361	
upgraded ilmenite	South West	61 178	92.00)		
reduced ilmenite	South West	53	65.00)		
			TiO ₂ tonnes		
leucoxene	South West	12 606	11 351	5 140 988	
			Th O ₂ units		
monazite	South West	12 407	80 231	8 417 755	
			TiO ₂ tonnes		
rutile	South West	82 462	78 566	46 089 968	
			Y ₂ O ₃ kg		
xenotime	South West	43	12 985	328 846	
			ZrO ₂ tonnes		
zircon	South West	310 576	205 849	56 297 397	
Total Mineral Beach Sands		1 518 247		195 111 315	(c)
			Assay Ni%		
Nickel Concentrates	Coolgardie	311 673	11.53	203 001 576	
	East Coolgardie	28 402	11.66	18 760 455	
	East Murchison	8 702	13.23	7 133 300	
	Mt Margaret	57 544	11.14	35 831 158	
		406 321		264 726 489	(e)
			Assay Ni%		
Nickel Ore	Coolgardie	59 257	3.53	10 065 723	(b)

TABLE 2 QUANTITY AND VALUE OF MINERALS:
SHOWING MINERAL-FIELD AND METALLIC CONTENT - continued

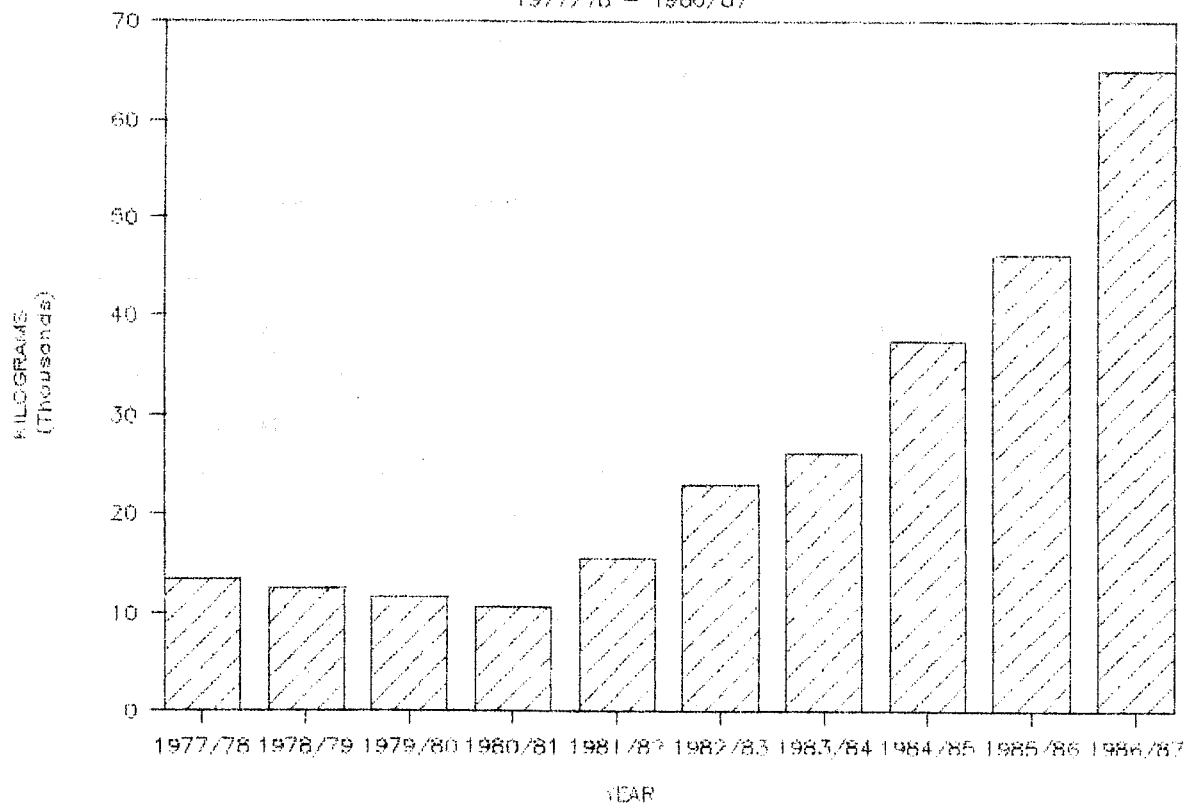
Mineral	Mineral-field	Quantity tonnes	Metallic Content	Value (\$)	Ref.
			kg		
Palladium (metallic by-product of nickel mining)	Coolgardie		489.728	3 218 062	(c)
Peat	South West	1 641		51 669	(b)
			Kilolitres		
	Basin				
Petroleum condensate	Carnarvon	509 910		NA	
	Perth	2 524		NA	
		512 434		NA	
crude oil	Canning	51 360		7 852 546	
	Carnarvon	1 514 566		253 650 041	
	Perth	8 729		1 341 033	
		1 574 655		262 843 620	(g)
			m ³ 10 ³		
natural gas	Carnarvon	2 774 237		244 521 000	
	Perth	424 928		33 468 304	
		3 199 165		277 989 304	(i)
			kg		
Platinum (metallic by-product of nickel mining)	Coolgardie		105.218	2 645 121	(c)
Salt	Gascoyne	1 755 186		37 928 780	
	Pilbara	1 840 393		38 010 349	
	South West	600		11 850	
	West Pilbara	1 454 969		31 431 365	
		5 051 148		107 382 344	(c)

TABLE 2 QUANTITY AND VALUE OF MINERALS:
SHOWING MINERAL-FIELD AND METALLIC CONTENT - continued

Mineral	Mineral-field	Quantity tonnes	Metallic Content	Value (\$)	Ref.	
Semi-precious stones amethyst	Gascoyne		kg 51 000	195 500	(d)	
Silica Sand	Coolgardie	75 966		N.A.		
	South West	295 199		N.A.		
		371 165		N.A.	(c)	
Silver	By-product of gold mining By-product of nickel mining		kg 10 072.070	1 614 738		
			1 087.543	357 215	(c)	
			11 159.613	1 971 953		
Spodumene	Greenbushes		Li ₂ O tonnes 476.56	1 905 601	(c)	
		8 221.46				
Talc	South West	179 241		NA		
Tantalite	Greenbushes		Ta ₂ O ₅ kg 73 054	4 224 365	(c)	
		107.78				
Tin	Greenbushes Pilbara		Sn tonnes 474.29	4 231 227		
			53.09	38.56	651 471	
			730.64	512.85	4 882 698	(c)
Vermiculite	Phillips River	819		16 388	(d)	
	Value of Minerals			4 649 910 373		
	Value of Gold			<u>1 300 079 190</u>		
				5 949 989 563		

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FIGURE 2
 WESTERN AUSTRALIAN GOLD PRODUCTION
 1977/78 - 1986/87



VALUE OF W.A. GOLD PRODUCTION
 1977/78 - 1986/87

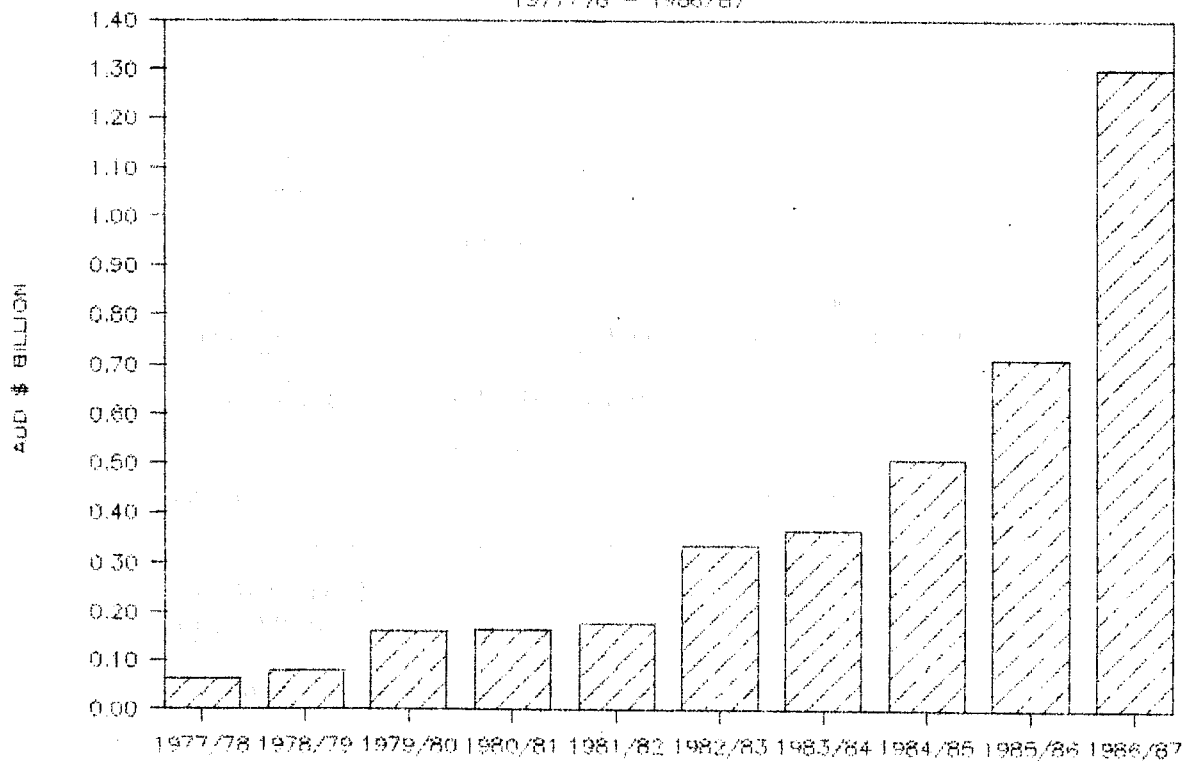


TABLE 3
 QUANTITY OF GOLD (KG) AND ORE TREATED 1986/87
 SHOWING MINERAL-FIELD AND DISTRICT

	ALLUVIAL KILOGRAMS	DOLLIED AND SPECIMENS KILOGRAMS	MILLED OR SMELTERED		TOTAL GOLD KILOGRAMS	SILVER KILOGRAMS
			ORE TREATED (TONNES)	GOLD THEREFROM KILOGRAMS		
KIMBERLEY	27.990	1.640	450	4.131	33.761	2.092
WEST KIMBERLEY	-	-	-	-	-	-
MARBLE BAR	34.246	5.806	1 516 159	6 321.294	6 361.346	521.378
NULLAGINE	24.367	4.080	23 810	164.848	193.295	2.199
PILBARA	58.613	9.886	1 539 969	6 486.142	6 554.641	523.577
WEST PILBARA	9.720	3.007	-	-	12.727	1.003
ASHBURTON	4.253	0.207	8	0.335	4.795	0.122
GASCOYNE	3.472	-	15	0.423	3.895	0.144
PEAK HILL	37.735	0.071	408 213	2 113.938	2 151.744	270.643
LAWLERS	11.173	-	950 814	2 931.339	2 942.512	186.617
WILUNA	1.419	0.534	254 707	1 256.241	1 258.194	68.179
BLACK RANGE	10.040	1.464	280 868	817.059	828.563	10.296
EAST MURCHISON	22.632	1.998	1 486 389	5 004.639	5 029.269	265.092
CUE	34.166	4.707	219 554	902.910	941.783	45.115
MEEKATHARRA	38.105	5.792	929 389	2 500.102	2 543.999	9.776
DAY DAWN	11.429	0.013	65 745	1 517.919	1 529.361	210.294
MT MAGNET	12.462	1.443	724 331	2 704.877	2 718.782	173.712
MURCHISON	96.162	11.955	1 939 019	7 625.808	7 733.925	438.897
YALGOO	1.308	0.158	387 177	1 458.761	1 460.227	29.250
MT MORGANS	14.712	0.284	1 467	19.973	34.969	1.449
MT MALCOLM	28.033	2.584	1 475 699	5 102.286	5 132.903	310.595
MT MARGARET	31.592	2.565	653 201	2 369.716	2 403.873	329.226
MT MARGARET	74.337	5.433	2 130 367	7 491.975	7 571.745	641.270
MENZIES	0.064	0.160	588	53.533	53.757	14.191
ULARRING	1.302	-	11 058	115.150	116.452	1.882
NIAGARA	1.909	0.365	50	8.135	10.409	0.095
YERILLA	0.321	0.016	279 803	813.236	813.573	137.648
NORTH COOLGARDIE	3.596	0.541	291 499	990.054	994.191	153.816
BROAD ARROW	6.318	-	1 968 692	5 044.364	5 050.682	292.914
KANOWNA	6.902	0.579	54 321	109.440	116.921	4.082
KURNALPI	0.605	1.144	194	0.398	2.147	0.105
NE COOLGARDIE	7.507	1.723	54 515	109.838	119.068	4.187
EAST COOLGARDIE	4.818	1.817	3 716 178	14 832.511	14 839.146	3 140.466
BULONG	2.487	0.447	-	-	2.934	0.202
EAST COOLGARDIE	7.305	2.264	3 716 178	14 832.511	14 842.080	3 140.668
COOLGARDIE	7.312	1.898	1 385 055	4 834.328	4 843.538	1 348.692
KUNANALLING	1.613	0.097	13 950	86.556	88.266	2.481
COOLGARDIE	8.925	1.995	1 399 005	4 920.884	4 931.804	1 351.173
YILGARN	3.070	0.395	1 888 557	5 149.903	5 153.368	272.846
DUNDAS	1.969	0.039	425 269	2 916.057	2 918.065	1 821.303
PHILLIPS RIVER	0.095	-	1 428	32.040	32.135	2.961
SOUTH WEST	-	-	89 557	309.854	309.854	-
STATE GENERALLY	2.077	1.260	-	-	3.337	0.406
TOTAL	377.084	42.572	17 726 307	64 491.657	64 911.313	9 212.364

Figure 3

ROYALTY RECEIPTS FOR MAJOR MINERALS

1986/87 RECEIPTS : \$ 156.3 MILLION

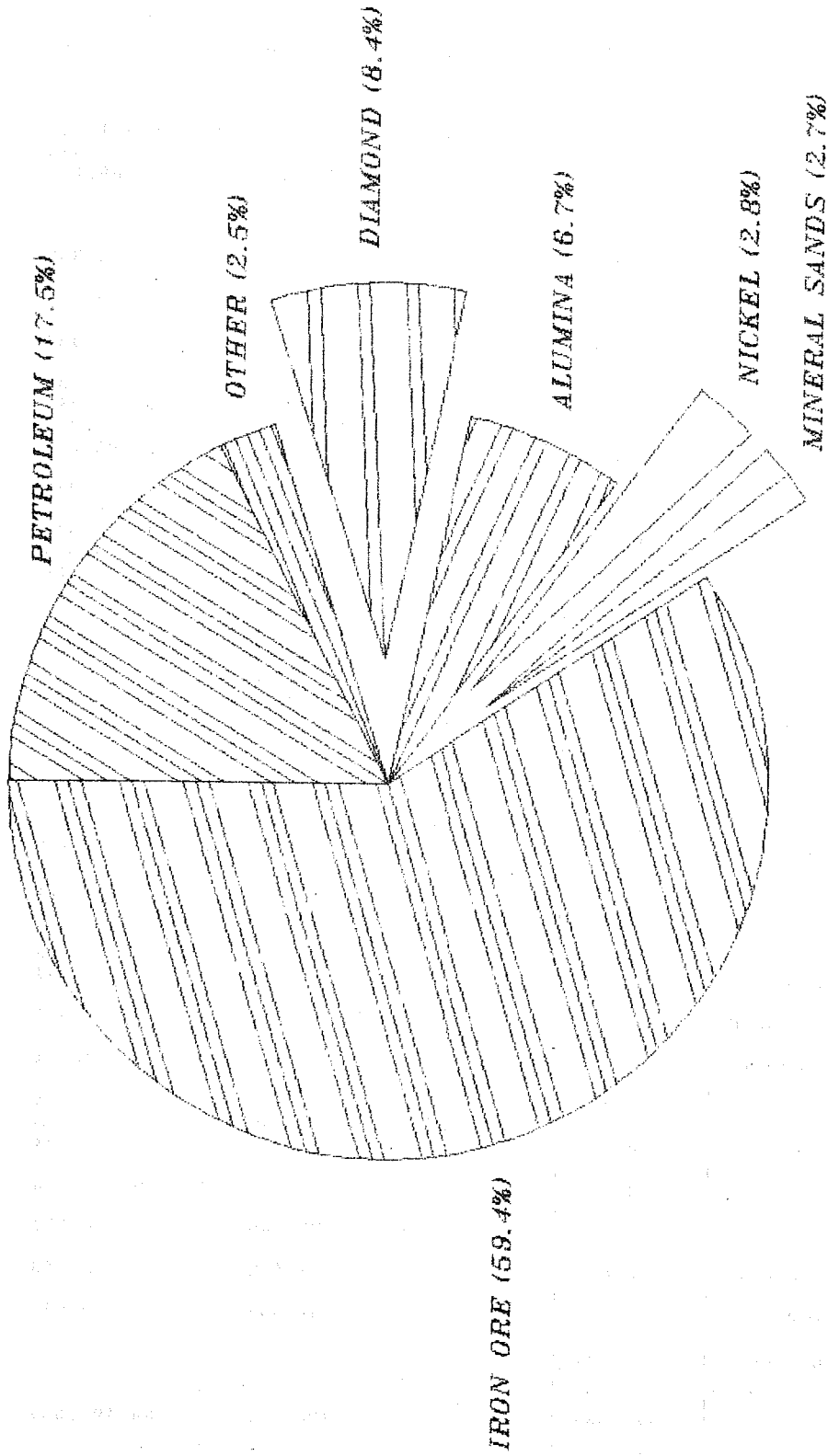


TABLE 4

ROYALTY RECEIPTS 1986/87

Mineral	Value (\$A)		Value (\$A) variance	% up (% down)
	1985/86 (\$A)	1986/87 (\$A)		
Alumina	9 923 606	10 540 225	616 619	6
Building stone	792	823	31	4
Clay	88 672	153 343	64 671	73
Coal	1 400 429	1 353 229	(47 200)	(3)
Cobalt	131 844	56 373	(75 471)	(57)
Construction materials				
aggregate	28 996	19 797	(9 199)	(32)
gravel	6 907	10 088	3 181	46
rock	21 779	22 519	740	3
sand	134 051	250 568	116 517	87
Copper	276 349	143 183	(133 166)	(48)
Diamond	2 864 655	13 109 395	10 244 740	358
Diatomite	281	173	(108)	(38)
Dolomite	369	18	(351)	(95)
Emerald	126	134	8	6
Feldspar	2 906	3 195	289	10
Garnet sand	11 327	19 230	7 903	70
Gold	103 663	111 974	8 311	8
Gypsum	118 963	83 998	(34 965)	(29)
Iron ore	101 950 692	92 780 315	(9 170 377)	(9)
Kyanite	1 285	5 841	4 556	355
Limestone	86 091	90 641	4 550	5
Mineral beach sands				
ilmenite	1 150 156	1 462 769	312 613	27
leucoxene	133 303	137 980	4 677	4
monazite	282 594	252 178	(30 416)	(11)
rutile	1 173 396	1 038 150	(135 246)	(12)
xenotime	2 742	8 457	5 715	208
zircon	1 486 272	1 347 903	(138 369)	(9)
Nickel	5 926 069	4 315 281	(1 610 788)	(27)
Ochre	1 460	2 255	795	55
Palladium	15 247	24 567	9 320	61
Peat	11 719	2 740	(8 979)	(77)
Petroleum Products				
condensate	641 546	695 164	53 618	8
crude oil	29 538 137	21 917 124	(7 621 013)	(26)
natural gas	3 843 821	4 797 338	953 517	25
Platinum	15 247	24 567	9 320	61
Salt	555 276	747 615	192 339	35
Semi-precious stones				
amethyst	10 581	6 375	(4 206)	(40)
moss opal	1	-	(1)	(100)
tiger eye	3 766	-	(3 766)	(100)
Silica sand	180 720	165 339	(15 381)	(9)
Silver	163 756	87 238	(76 518)	(47)
Spodumene	48 803	72 632	23 829	49
Talc	80 442	88 874	8 432	10
Tantalite	86 284	109 428	23 144	27
Tin	125 563	143 601	18 038	14
Vermiculite	377	804	427	113
Zinc Concentrate	350 598	78 427	(272 171)	(78)
Total value	162 981 659	156 281 868	(6 699 791)	(4)

TABLE 5
NUMBER OF PERSONS EMPLOYED IN THE WESTERN AUSTRALIAN MINING INDUSTRY
AS AT JUNE 30, 1987

(SOURCE: AXTAT REPORTING SYSTEM, MINING ENGINEERING DIVISION)

MINERAL Company	Location	Total
ALUMINA		
Alcoa of Australia Ltd	Jarrahdale/Kwinana	1 449
	Del Park/Huntley/Pinjarra	1 646
	Wagerup	498
	Administration	260
	Worsley	842
Worsley Alumina Pty Ltd		4 695
COAL		
Griffin Coal Mining Co Ltd	Collie	474
Western Collieries Ltd	Collie	691
		1 165
DIAMOND		
Argyle Diamond Mines Joint Venture	Lake Argyle	661
GOLD		
AUR NL	Mt. Martin	62
Australian Consolidated Minerals Ltd	Golden Crown	88
	Westonia	133
Australis Mining NL	Norseman	49
Austwhim Resources NL	Cork Tree Well/Mt Morgans	75
BHP Minerals Ltd.	Gimlet South/Orban J.V.	121
Bamboo Creek J.V.	Bamboo Creek	64
Bardoc Gold Pty Ltd	Bardoc	73
Barrack Mine Management	Peak Hill	29
	Horseshoe	84
	Wiluna	80
Boddington Gold Project	Boddington	94
Broad Arrow J.V.	Talbot/Victory	42
Brunswick NL	Galtee More	42
Central Norseman Gold Corp. NL	Norseman	54
Chevron Exploration Corp.	Norseman	456
Cypress Minerals Aust. Co.	Mt. Wilkinson	78
Eastmet Ltd.	Gidgee	74
Edjudina Gold Mines Pty Ltd.	Youanmi	68
Endeavour Resources Ltd	Neda/Gawler	94
Forrest Gold Pty Ltd.	Bluebird	128
	Hannans South	29
	Tower Hill	39
Forsayth NL	Lawlers	71
Golden Spec J.V.	Golden Spec	41
Great Victoria Gold Ltd.	Gt. Victoria	106
Harbour Lights Mining Pty Ltd.	Leonora	101
Hill 50 Gold Mine NL	Mt. Magnet	276
KLV-Kalgoorlie	Mt. Charlotte	286
KLV-Fimiston	Perseverance	61
Kia Ora Gold Corp. Ltd.	Marvel Loch	188
Kurara J.V.	Kurara	56
Metana Minerals	Black Cat	34
	Reedy	68
	Mt. Magnet	75
Mincoa NL	Edwards Find	42
Mt Percy Project	Mt Percy	75
Nevoria J.V.	Nevoria	40
Newmont Holdings Pty Ltd.	New Celebration	91
North Kalgurli Mines Ltd.	Norkal/Fimiston	477
Pancontinental Gold Mining Areas Pty Ltd	Paddington	141
Queen Margaret Gold Mines	Bellevue	57
Sons of Gwallia NL	Gwallia	81
Telfer Project	Telfer	425
WMC-Gt. Boulder Holdings	Davyhurst	23
	Emu	62
	Kambalda	123
	Lancefield	84
	Sand King	35
WMC Ltd & Consolidated Exploration Ltd	Lady Bountiful	71
Whim Creek Consolidated NL	Meekatharra	140
All Other Operators		737
		6757
IRON ORE		
BHP Minerals Pty Ltd.	Yampi	499
Goldsworthy Mining Ltd	Pilbara/Port Hedland	1 003
Hammersley Iron Pty Ltd	Tom Price-Paraburdoo/Dampier	3 830
Mt Newman Mining Co Ltd	Newman/Port Hedland	4 192
Robe River Mining Co Pty Ltd	Pannawonica/Cape Lambert	1 365
		10 889
MINERAL BEACH SAND		
Allied Eneabba Pty Ltd	Eneabba	119
Associated Minerals Cons. Ltd	Capel	185
	Eneabba	364
Cable Sands Pty Ltd	Capel	109
Westralian Sands Ltd	Capel	343
		1 120
NICKEL		
Agnew Mining Co Pty Ltd	Leinster	29
Metals Exploration Ltd	Nepean	18
Western Mining Corporation	Kalgoorlie	317
	Kambalda	1 375
	Kwinana Refinery	360
	Mt Windarra	360
		2 428
PETROLEUM PRODUCTS		
Bond Corporation Pty Ltd.	Harriet	61
Home Energy Pty Ltd	Blina/Sundown	6
Barrack Energy Ltd	Mt Horner	2
Strata Oil NL	Woodada	1
West Australian Petroleum Pty Ltd	Barrow Island	171
Woodside Offshore Petroleum Pty Ltd	Dongara	13
	North Rankin A/	
	Burrup Peninsula	1 351
		1 605
SALT		
Dampier Salt Ltd	Dampier	202
Leslie Salt Co.	Lake McLeod	96
Shark Bay Salt JV	Port Hedland	122
	Shark Bay	82
All Other Materials (including Rock Quarries)		502
		759
TOTAL		30 581

PRINCIPAL MINERAL PRODUCERS 1986 /87- continued.

CONSTRUCTION MATERIALS (ctd) - rock

Specified Services Pty Ltd, P O Box 89, West Perth 6005, (09) 321 3086: Mt Regal.

- sand

Calsil Ltd, P O Box 7214, Cloisters Square, Perth 6000, (09) 321 8552: Port Hedland.

Cottlers Pty Ltd, P O Box 311, Port Hedland 6721, (09) 72 1553: Port Hedland.

Drew, M, P O Box 55, Cervantes, 6511, (095) 45 7018: Cervantes.

Marathon Roofing Pty Ltd, P O Box 5, Willetton 6155, (09) 455 1488: Jandakot.

May, S, C/- 660 Londond Rd, Chandler, Queensland 4155, (07) 245 4399: Sherlock.

Monier Ltd, P O Box 5, Willetton 6155, (09) 455 1488: Gosnells, Gnangarra.

Pioneer Concrete (WA) Pty Ltd, P O Box 187, Victoria Park 6100, (09) 362 1100: Port Hedland, Paraburdoo.

Specified Services Pty Ltd, P O Box 89, West Perth 6005, (09) 321 3086: Maitland.

Stillman WJ, PO Box 71, Boulder WA 6432: Lake Lefroy.

The Readymix Group (WA), P O Box 20, Bentley 6102, (09) 451 5566: Karratha, Lake Raeside, Rocklea, Turner River, Warrambie Station, Widgiemooltha.

Tomlinson JJ, Via Flynn Road, East Mundaring WA 6073, (095) 72 6088: Chidlow

Wreford, WB, C/- PO Box 517, Karratha, WA 6714, (091) 83 8100: West Pilbara

COPPER

Agnew Mining Company Pty Ltd, P O Box 22, Leinster 6437, (090) 37 6005: Agnew.

Western Mining Corporation Ltd, P O Box 80, Belmont 6104, (09) 478 0711: Kambalda.

DIAMOND

Argyle Diamond Mines Pty Ltd, Private Bag No 11 Post Office, West Perth 6005, (09) 325 1166: Argyle.

Freeport of Aust. Inc., P O Box 280, Collins St Post Office, Melbourne Victoria 3000, (03) 602 4811 Lissadell

Gem Exploration & Minerals Ltd, P O Box 7009, Cloisters Square, Perth 6000, (09) 322 1979: Lissadell

DIATOMITE

Hines, Horton and Rule, C/- 141 Robinson Street, Gingin 6503, (095) 75 2261: Gabys Peak.

DOLOMITE

Green K&P, Newdegate 6355, (098) 71 1547 : Lake Magenta.

EMERALD

Mackay, NJ, 91 Thomas St, Nedlands WA 6009, (09) 386 6206: Wonder Well

FELDSPAR

Magnet Industries Pty Ltd, P O Box 209, Cannington 6107, (09) 453 6777: Mukinbudin.

GARNET SAND

Target Minerals N L, P O Box 188, Geraldton 6530, (099) 23 3644: Port Gregory.

GOLD

Australian Consolidated Minerals Ltd, C/- GP0 Box X2201, Perth WA 6001, (09) 325 7755: Golden Crown,

Westonia.

Central Norseman Gold Corporation N L, P O Box 56, Norseman 6443, (090) 39 1101: Central Norseman.

Endeavour Resources Ltd, 31 Ventnor Ave, West Perth 6005, (09) 322 6444: Bluebird, Ingliston.

Forsayth NL & Reynolds Aust. Mines Pty Ltd, 1st Floor, 28 The Esplanade, Perth 6000, (09) 3227221: Mt.

Gibson.

Great Victoria Gold Ltd, C/- Post Office, Southern Cross WA 6426, (090) 401 099: Great Victoria.

Harbour Lights Mining Ltd, P O Box 240, Leonora 6438, (090) 37 6211: Harbour Lights.

Hill 50 Gold Mine N L, 140 St George's Terrace, Perth 6000, (09) 322 6915: Hill 50.

Horseshoe Lights Gold Pty Ltd, 614 Newcastle St, Leederville 6107, (09) 328 8200: Horseshoe.

Kalgoorlie Mining Associates, P O Box 105, Fimiston 6435, (090) 21 3411: Fimiston, Mt Charlotte.

Kia Ora Gold Corporation NL, P O Box 78, Southern Cross WA 6426, (090) 401 050: Marvel Loch.

Mt Percy Gold Project, P O Box 489, Kalgoorlie 6430, (090) 218 276: Mt Percy.

Newmont Holdings Pty Ltd, P O Box 211, Cloverdale 6105, (09) 277 7011: Telfer.

North Kalgoorlie Mines Ltd, P O Box 88, Fimiston 6435, (090) 21 0600: Fimiston, Parlinga.

Pancontinental Goldmining Areas Pty Ltd, P O Box 1161, Kalgoorlie 6430, (090) 24 2000: Paddington.

Sons of Gwalia Ltd, P O Box 669, West Perth 6005, (09) 322 1773: Sons of Gwalia.

Western Mining Corporation Ltd, P O Box 80, Belmont 6104, (09) 478 0711: Emu, Gt Boulder, Kambalda,

Lancelfield, Sand King.

Western Alluvials Pty Ltd, C/-Bardack Mine Management, 614 Newcastle St., Leederville 6107

(09) 328 8200: Wiluna.

Whim Creek Consolidated N L, P O Box 144, West Perth 6005, (09) 325 5855: Haveluck/Phar Lap.

GYPSUM

Agnew Clough Ltd, P O Box 7005, Cloisters Square, Perth 6000, (09) 322 4811: Shark Bay.

Endeavour Resources Pty Ltd, Private Bag 16 Post Office, West Perth 6005, (09) 322 6444:

Wyalkatchem.

Blake and Sita, P O Box 144, Merredin 6415: Lake Brown.

Brady H B and Company Pty Ltd, P O Box 42 Bayswater 6053, (09) 279 4422: Lake Brown.

Cusack, B, P O Box 103, Narrobin, 6369 (090) 64 7311: Kondinin.

CSR Building Materials, P O Box 91, Bentley 6102, (09) 451 4444: Yellowline.

D & C Nominees Pty Ltd, P O Box 155, Yerecolin 6571: Wongan Hills.

Eaton MB & AE, P O Box 146, Narrobin 6369, (090) 64 7316, Mt. Walker.

Fitzgerald, EM & EJ, P O Box 404 Merredin 6495 (090) 41 1146: Hines Hill.

Green K L and P M, Newdegate 6555: Newdegate.

Hathaway, G, R & S, P O Box 33, Kalannie 6468, (096) 66 2011: Lake Hillman.

Kidman, G, P O Box 69, Newdegate 6555, (098) 71 6044: Varley.

McAndrew Mining, Yelbeni 6487: Yelbeni.

Nixon P F and R S, P O Box 69, Moora 6510: Lake Hillman.

Pustkuchen, JV & Enright, AM & BA, C/- 3 Mitchell St, Kalliberrin, 6410, (090) 45 4052: Hines Hill.

Southern Asiatic Enterprises Pty Ltd, 41 St George's Terrace, Perth 6000, (09) 325 7417: Norseman.

Swan Portland Cement Ltd, P O Box 78, Rivervale 6103, (09) 361 8822: Lake Hillman.

IRON ORE

BHP Minerals Pty Ltd, P O Box 160, Kwinana 6167, (09) 410 1111: Cockatoo Island, Koolan Island.

Goldsworthy Mining Ltd, GP0 Box B80, Perth 6001, (09) 322 1788: Shay Gap, Sunrise Hill.

Hammersley Iron Pty Ltd, P O Box A42, Perth 6000, (09) 327 2327: Mt Tom Price, Paraburdoo.

Mt Newman Mining Company Pty Ltd, P O Box 7122, Cloisters Square, Perth 6000, (09) 322 0691:

Newman.

Robe River Iron Associates, GP0 Box P1224, Perth 6001, (09) 325 9288: Pannawonica.

PRINCIPAL MINERAL PRODUCERS 1986/87 - continued.

LIMESTONE

Endeavour Resources Ltd, C/- PMB 16, West Perth, 6005, (09) 322 6444: Lancelin.
Bell Basic Industries Ltd, P O Box 75, Guildford 6055, (09) 279 0000: Wanneroo.
Chelsford Pty Ltd, 89 Erindale Road, Balcatta WA 6021, (09) 349 6009: Wanneroo.
Cypress Nominees Pty Ltd, 4 Phillips Place, Karrinyup 6018, (09) 446 3930: Moore River.
Specified Services Pty Ltd, P O Box 89, West Perth 6005, (09) 321 3086: Cleaverville.
Swan Portland Cement Ltd, P O Box 78, Rivervale 6103, (09) 361 8822: Wanneroo.
Unimil Pty Ltd, P O Box 15, Bentley, 6102, (09) 362 1411: Lancelin.
Sunrise Investments Pty Ltd., 41 Spearwood Ave., Bibra Lake 6163 (09) 4181030: Wanneroo.

MINERAL BEACH SANDS

Allied Eneabba Ltd, 45 Stirling Highway, Nedlands 6009, (09) 386 8611: Eneabba.
Associated Minerals Consolidated Ltd, 45 Stirling Highway, Nedlands 6009, (09) 386 8611: Capel, Eneabba.
Cable Sands Pty Ltd, P O Box 133, Bunbury 6230, (097) 21 4111: Capel.
Westralian Sands Pty Ltd, P O Box 96, Capel 6271, (097) 27 2002: Boyanup, North Capel, Yoganup.

NICKEL

Agnew Mining Corporation Pty Ltd, P O Box 22, Leinster 6437, (090) 37 6005: Agnew.
BHP Minerals Ltd, GPO Box 86A, Melbourne 3001, (03) 60 0701: Carnilya Hill.
Metals Exploration Ltd, 80 Collins Street, Melbourne 3000, (03) 653 7100: Nepean.
Western Mining Corporation Ltd, P O Box 80, Belmont 6104, (09) 478 0711: Carnilya Hill, Kambalda, Windarra.

PALLADIUM

Western Mining Corporation Ltd, P O Box 80, Belmont 6104 (09) 478 0711: Kambalda.

PETROLEUM - condensate

Strata Oil N L, GPO Box G474, Perth 6001, (09) 325 8155: Woodada.
West Australian Petroleum Pty Ltd, GPO Box C1580, Perth 6001, (09) 325 0181: Barrow Island, Dongara.
Woodside Offshore Petroleum Pty Ltd, GPO Box D188, Perth 6001, (09) 425 1211: North Rankin.

- crude oil

Barrack Energy Ltd, PO Box 7191, Cloisters Square, Perth 6000, (09) 381 7122: Mt. Horner
Bond Corporation Pty Ltd, GPO Box X2275, Perth 6001, (09) 322 7355: Harriet.
Home Energy Company Ltd, P O Box 6176, Hay Street East, Perth 6000, (09) 325 1555: Blina.
West Australian Petroleum Pty Ltd, GPO Box C1580, Perth 6001, (09) 325 0181: Barrow Island, Dongara.

- natural gas

Strata Oil N L, GPO Box G474, Perth 6001, (09) 325 8155: Woodada.
West Australian Petroleum Pty Ltd, GPO Box C1580, Perth 6001, (09) 325 0181: North Perth Basin.
Woodside Offshore Petroleum Pty Ltd, GPO Box D188, Perth 6001, (09) 425 1211: North Rankin.

PLATINUM

Western Mining Corporation Ltd, P O Box 80, Belmont 6104, (09) 478 0711: Kambalda.

PRINCIPAL MINERAL PRODUCERS 1986 - continued.

SALT

Dampier Salt Ltd, P O Box 7073, Cloisters Square, Perth 6000, (09) 327 2327; Dampier, Lake Macleod.
 Leslie Salt Company, P O Box 420, Port Hedland 6721, (091) 72 3777; Port Hedland.
 Shark Bay Salt Joint Venture, P O Box 7005, Cloisters Square, Perth 6000, (09) 322 4811; Shark Bay.

SEMI-PRECIOUS STONES - amethyst and moss opal

Soklich Trading Company, Dale Place, Orange Grove 6109 (09) 459 1449; Gascoyne.

SILICA SAND

Australian Glass Manufacturers Co, 35 Bailie Road, Canning Vale 6155 (09) 455 1111; Lake Gangarara.
 Bell Basic Industries Ltd, P O Box 75, Guildford 6055, (09) 279 0000; Jandakot.
 Monier Sands, P O Box 5, Willetton 6155, (09) 455 1488; Jandakot.
 The Readymix Group (WA), P O Box 20, Bentley 6102, (09) 451 5566; Jandakot.
 Western Mining Corporation Ltd, P O Box 80, Belmont 6104, (09) 478 0711; Douglas Lake.

SILVER

Western Mining Corporation Ltd, P O Box 80, Belmont 6104, (09) 478 0711; Kambalda.

SPODUMENE

Lithium Australia Ltd, GPO Box 1646, Perth 6001, (09) 325 8900; Greenbushes.

TALC

Western Mining Corporation Ltd, P O Box 80, Belmont 6104, (09) 478 0711; Three Springs.

TANTALITE

Greenbushes Tin Ltd, GPO Box 1646, Perth 6001, (09) 325 8900; Greenbushes.

TIN

Endeavour Resources Ltd, Private Bag 16 Post Office, West Perth 6005, (09) 322 6444; Moolyella.
 Greenbushes Tin Ltd, GPO Box 1646, Perth 6001, (09) 325 8900; Greenbushes.

VERMICULITE

Vermiculite Industries Pty Ltd, 101 Ewing Street, Welshpool 6106; Young River.

RS415AG0388

MINERAL PRODUCTION MAJOR CENTRES

REFERENCE

- | | |
|-------------|-----------------|
| △ BAUXITE | ◆ IRON ORE |
| ■ COAL | □ MINERAL SANDS |
| ◇ TIN | ☀ NATURAL GAS |
| ☀ CRUDE OIL | ⊗ NICKEL |
| ☆ DIAMONDS | ▲ SALT |
| ○ GOLD | ★ TALC |
| ● GYPSUM | |

