

Resource Centre  
Policy Branch  
Dept. of Minerals & Energy



ROYALTIES AND STATISTICS BRANCH

**STATISTICAL DIGEST OF  
MINERAL PRODUCTION  
1985/86**



**DEPARTMENT OF MINES  
WESTERN AUSTRALIA**

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MINERAL PRODUCTION  
1985/86

COMPILED BY:

ROYALTIES AND STATISTICS BRANCH

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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		

### 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	cubic metre	m <sup>3</sup>	barrel (bbl)	0.158987	6.28981
	litre	L	gallon	4.54609	0.2199692
	kilolitre	kL			

## SUMMARY

The total value of mineral production in Western Australia for the year 1985/86 is estimated at \$5 253.0 million, an increase of \$571.3 million over the previous financial year.

Iron Ore production decreased by 4.2% to 85.5 million tonnes, however the devaluation of the Australian dollar resulted in an overall sales value increase of 7.4% to \$1 966 million. Iron Ore made up 38% of the total value of mineral production and continues to be the major mineral commodity in the State.

Other minerals to record significant increases in production during the year were: Diamond up 213.7% to 17.5 million carats following the commencement of production from the AK1 Kimberlite Pipe. The first full year of production from the North West Shelf Project accounts for the increases in Natural Gas and Condensate in 1985/86. Gold increased by 23.1% to 46 072 kilograms following the commencement of a dozen new gold operations since 1984/85.

State royalty revenue has increased significantly over the last few years and for the year 1985/86 was \$163.0 million, an increase of \$32.0 million over the previous year.

Significant increases in royalty revenue came from Coal, Mineral Beach Sands, Iron Ore and Petroleum products with rises of 28%, 58%, 115% and 94% respectively.

Mineral	Units	Production		% up (% down)
		1984/85	1985/86	
Alumina	Mt	5.3	5.4	1.9
Coal	Mt	3.7	3.8	2.5
Diamond	M carats	5.6	17.5	213.7
Gold	t	37.4	46.1	23.1
Iron Ore	Mt	89.3	85.5	(4.2)
Mineral Sands:				
Ilmenite	Mt	1.3	1.1	(11.9)
Leucoxene	Kt	19.6	19.0	(2.9)
Monazite	Kt	16.6	18.0	8.3
Rutile	Kt	73.4	71.8	(2.3)
Zircon	Kt	362.3	349.0	(3.7)
Nickel Conc.	Kt	486.5	455.2	(6.4)
Nickel Ore	Kt	-	45.9	Inf.
Petroleum				
Condensate	Kt	94.9	293.1	209.0
Natural Gas	Mm <sup>3</sup>	1 759.6	2 756.1	56.6
Oil	Mt	1 216.5	1 430.2	17.6
Tin Conc.	t	569.1	679.3	19.4

QUANTITY AND VALUE OF MINERALS 1984/85, 1985/86

Mineral	Unit	1984/85		1985/86	
		Quantity	Value (\$)	Quantity	Value (\$)
Alumina	tonne	5 326 982	1 056 839 641	5 430 255	1 029 283 528
Building Stone					
black granite	t	-	-	145	45 000
quartz	t	2 644	118 980	2 233	100 481
Clay					
attapulgite	t	-	-	41 885	n.a.
cement clay	t	28 155	70 389	23 131	57 828
fire clay	t	242 489	292 136	255 015	306 018
kaolin	t	1 710	31 505	4 600	188 422
white clay	t	-	-	126 899	372 318
Coal	t	3 672 619	109 120 090	3 765 045	126 840 815
Cobalt	t	449	5 937 452	515	9 230 525
Construction Material					
aggregate	t	160 544	1 007 069	117 255	744 055
gravel	t	58 944	67 107	6 379	16 098
rock	t	46 524	92 686	92 044	184 092
sand	t	594 017	1 007 661	886 091	1 660 770
Copper	t	3 424	3 141 119	3 484	4 162 432
Copper Concentrate	t	48 533	12 803 570	44 468	9 700 345
Cupreous Ore	t	42	6 748	-	-
Diamond	carat	5 569 285	45 056 768	17 472 460	147 567 905
Diatomite	t	257	1 029	1 638	8 450
Dolomite	t	300	2 100	330	2 310
Emerald	gram	-	-	225	1 685
Felspar	t	4 779	32 017	10 104	67 700
Garnet Sand	t	4 269	149 459	8 166	285 810
Gold	kilogram	37 425	508 891 876	46 072	707 113 630
Gypsum	t	545 151	6 169 189	348 639	3 908 872
Iron Ore	t	89 296 548	1 830 519 885	85 513 414	1 965 666 843
Limestone	t	209 618	1 187 327	206 289	1 088 735
Magnesite	t	16 729	215 936	-	-
Mineral Beach Sand					
ilmenite	t	1 187 577)		1 050 131)	
reduced ilmenite	t	140)	55 385 867	- )	59 817 919
upgraded ilmenite	t	69 516)		57 818)	
kyanite	t	39	3 618	249	29 817
leucoxene	t	19 571	4 583 699	19 002	6 219 583
monazite	t	16 590	7 512 887	17 962	10 384 934
rutile	t	73 484	25 457 848	71 794	30 751 960
xenotime	t	42	397 547	25	345 693
zircon	t	362 339	41 279 076	349 030	48 356 864
Nickel Concentrate	t	486 491	363 306 720	455 155	313 472 129
Nickel Ore	t	-	-	45 937	8 490 324
Palladium	kilogram	461	2 491 786	421	2 050 352
Peat	t	-	-	10 238	441 894
Petrol Products					
condensate	t	94 861	n.a.	293 088	n.a.
crude oil	kilolitre	1 216 456	284 790 518	1 430 180	311 924 009
natural gas	'000m <sup>3</sup>	1 759 631	165 844 011	2 756 065	291 608 694
Platinum	kilogram	81	1 225 011	94	1 498 493
Salt	t	4 822 931	88 560 999	4 814 138	95 326 825
Semi-precious Stone					
amethyst	kilogram	59 586	90 368	8 988	50 716
moss opal	kilogram	-	-	21	14
tiger eye	t	-	-	54	50 214
Silica Sand	t	404 636	1 274 898	377 009	665 887
Silver	kilogram	44 670	12 761 245	41 135	10 705 718
Spodumene	t	8 505	1 852 772	12 690	2 967 402
Talc	t	182 613	n.a.	133 262	n.a.
Tantalite	t	69	4 219 279	143	4 853 625
Tin Concentrate	t	569	9 442 807	679	6 371 195
Vermiculite	t	471	7 740	552	9 034
Zinc Concentrate	t	42 438	10 451 891	75 946	20 044 441
Total Value			4 663 702 326		5 235 042 403

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

Mineral	Gold-field Mineral-field	Quantity tonnes	Metallic Content	Value (\$)	Ref.
Alumina	South West	5 430 255		1 029 283 528	(a)
Building stone					
black granite	West Kimberley	145		45 000	
quartz	South West	2 233		100 481	
		2 378		145 481	(b)
Clay					
attapulgitic	South West	41 885		NA	
cement clay	South West	23 131		57 828	
fire clay	South West	255 015		306 018	
kaolin	Greenbushes	4 600		188 422	
white clay	South West	126 899		372 318	
		451 645		924 586	(b)
Coal	Collie	3 765 045		126 840 815	(h)
			Cobalt tonnes		
Cobalt (metallic by- product of nickel mining)	Coolgardie		381.482	7 308 394	
	East Murchison		133.909	1 922 131	
			515.391	9 230 525	(c)
Construction Materials					
aggregate	East Coolgardie	93 400		666 812	
	Kimberley	7 428		29 712	
	Pilbara	3 956		15 033	
	West Pilbara	12 471		32 498	
		117 255		744 055	(b)
gravel	Pilbara	3 839		3 839	
	West Pilbara	2 540		12 259	
		6 379		16 098	(b)
rock	West Pilbara	92 044		184 092	(b)
sand	Coolgardie	11 594		45 921	
	East Murchison	2 573		12 350	
	Kimberley	10 266		41 064	
	Pilbara	19 735		101 969	
	South West	773 665		1 292 907	
	West Kimberley	19 000		38 000	
	West Pilbara	49 258		128 559	
		886 091		1 660 770	(b)
		1 101 769		2 605 015	



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

Mineral	Gold-field Mineral-field	Quantity tonnes	Metallic Content	Value (\$)	Ref.
			Copper t		
Copper (metallic by- product of nickel mining)	Coolgardie		2 691.371	3 436 840	
	East Murchison		792.459	725 592	
			3 483.830	4 162 432	(c)
			Copper t		
Copper Concentrates	Mt Margaret	44 468	8 787.746	9 700 345	(c)
			Carats		
Diamond	Kimberley		17 472 460	147 567 905	(c)
Diatomite	South West	1 638		8 450	(d)
Dolomite	South West	330		2 310	(d)
			Grams		
Emerald	North Coolgardie		225	1 685	(d)
Felspar	South West	10 104		67 700	(d)
Garnet Sand	South West	8 166		285 810	(d)
			Ore treated	Estimated kg*	
Gold	State generally	11 469 920	46 072.127	707 113 630	

\*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 GOLD-FIELD/MINERAL-FIELD AND METALLIC CONTENT - continued**

Mineral	Gold-field Mineral-field	Quantity tonnes	Metallic Content	Value (\$)	Ref.
Gypsum	Dundas	35 848		322 632	(d)
	Gascoyne	157 578		2 681 468	(c)
	South West	71 913		648 287	(b), (d)
	Yilgarn	83 300		256 485	(d)
		348 639		3 908 872	

Plaster of Paris reported as manufactured during the year - 54 520 tonnes from 79 511 tonnes of gypsum by two companies.

		Assay Fe %			
Iron Ore					
Ore shipped interstate	Peak Hill	4 684 092	64.00	89 404 231	
	Pilbara	104 266	62.18	2 911 591	
	West Kimberley	1 493 223	67.53	16 425 453	
	West Pilbara	368 813	62.89	7 247 484	
		6 650 394		115 988 759	
Ore exported overseas					
Ore exported overseas	Peak Hill	22 404 461	63.00	589 145 056	
	Pilbara	5 059 328	63.43	120 900 346	
	West Kimberley	2 372 158	66.71	56 073 267	
	West Pilbara	49 027 073	61.40	1 083 559 415	
		78 863 020		1 849 678 084	
		85 513 414		1 965 666 843	(c)
Limestone					
Limestone	South West	200 289		1 082 735	
	West Pilbara	5 971		5 971	
		206 289		1 088 735	(b)

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

Mineral	Gold-field Mineral-field	Quantity tonnes	Metallic Content	Value (\$)	Ref.
Mineral Beach Sands			Av. Assay TiO <sub>2</sub> %		
ilmenite	South West	1 050 131	56.53)	59 817 919	(c)
upgraded ilmenite	South West	57 818	) 92.00)		
kyanite	South West	249		29 817	(c)
			TiO <sub>2</sub> tonnes		
leucoxene	South West	19 002	17 113	6 219 583	(c)
			Th O <sub>2</sub> units		
monazite	South West	17 962	115 246	10 384 934	(c)
			TiO <sub>2</sub> tonnes		
rutile	South West	71 794	68 409	30 751 960	(c)
			Y <sub>2</sub> O <sub>3</sub> kg		
xenotime	South West	25	2 400	345 693	(c)
			ZrO <sub>2</sub> tonnes		
zircon	South West	349 030	230 149	48 356 864	(c)
			Assay Ni%		
Nickel Concentrates	Coolgardie	282 153	11.31	188 954 687	
	East Coolgardie	23 299	11.68	16 668 209	
	East Murchison	84 058	12.69	65 742 624	
	Mt Margaret	65 645	10.63	42 106 609	
		455 155		313 472 129	(e)
			Assay Ni%		
Nickel Ore	Coolgardie	45 937	3.03	8 490 324	(b)

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

Mineral	Gold-field Mineral-field	Quantity tonnes	Metallic Content	Value (\$)	Ref.
			kg		
Palladium (metallic by- product of nickel mining)	Coolgardie		420.585	2 050 352	(c)
Peat	South West	10 238		441 894	(b)
Petroleum condensate	Basin Carnarvon Perth	291 150 1 938		NA NA	
		293 088			
			Kilolitres		
crude oil	Canning Carnarvon Perth	56 384 1 364 960 8 836		11 734 187 298 375 541 1 814 281	
		1 430 180		311 924 009	(g)
			m <sup>3</sup> 10 <sup>3</sup>		
natural gas	Carnarvon Perth	2 201 812 554 253		257 661 700 33 946 994	
		2 756 065		291 608 694	(i)
			kg		
Platinum (metallic by- product of nickel mining)	Coolgardie	94.460		1 498 493	(c)
Salt	Gascoyne Pilbara West Pilbara	1 421 420 1 605 412 1 787 306		95 326 825 31 572 864 36 834 888	
		4 814 138		95 326 825	(c)

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

Mineral	Gold-field Mineral-field	Quantity tonnes	Metallic Content	Value (\$)	Ref.
Semi-precious stones			kg		
amethyst	Gascoyne		8 988	50 716	
moss opal	Dundas		21	14	
tiger eye	West Pilbara	53.98		50 214	
				100 944	(d)
Silica Sand	Coolgardie	83 068		203 518	
	South West	293 941		462 359	
		377 009		665 887	(c)
Silver	By-product of gold mining		kg		
	By-product of nickel mining		7 160.662	1 333 945	
	Mt Margaret		715.685	143 724	(c)
			33 258.830	9 228 049	(c)
			41 135.177	10 705 718	
Spodumene	Greenbushes	12 690.174	Li <sub>2</sub> O t	2 967 402	(c)
Talc	South West	133 262		NA	
Tantalite	Greenbushes	140.560	Ta <sub>2</sub> O <sub>5</sub> kg	4 752 625	
	Pilbara	2.824	64 504	101 000	
		143.384	1 519	4 853 625	(c)
Tin	Greenbushes	646.72	Sn tonnes	6 015 615	
	Pilbara	32.34	452.70	355 580	
		679.26	23.42	6 371 195	(c)

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

Mineral	Gold-field Mineral-field	Quantity tonnes	Metallic Content	Value (\$)	Ref.
Vermiculite	Phillips River	552		9 034	(d)
			Zn tonnes		
Zinc	Mt Margaret	75 946	31 822.075	20 044 441	(c)
	Value of Minerals			4 527 928 773	
	Value of Gold			<u>707 113 630</u>	
				5 235 042 403	

TABLE 3  
QUANTITY OF GOLD (KG) AND ORE TREATED 1985/86  
SHOWING GOLDFIELD AND DISTRICT

	ALLUVIAL KILOGRAMS	DOLLIED AND SPECIMENS KILOGRAMS	MILLED OR SMELTERED		TOTAL GOLD KILOGRAMS	SILVER KILOGRAMS
			ORE TREATED (TONNES)	GOLD THEREFROM KILOGRAMS		
KIMBERLEY	7.588	0.352	-	-	7.940	0.584
WEST KIMBERLEY	-	-	-	-	-	-
MARBLE BAR	32.111	1.752	1 431 728.00	5 060.569	5 094.432	353.199
NULLAGINE	48.343	4.634	279.00	1.872	54.849	1.740
PILBARA	80.454	6.386	1 432 007.00	5 062.441	5 149.281	354.939
WEST PILBARA	6.177	0.119	-	-	6.296	0.531
ASHBURTON	3.618	0.248	-	-	3.866	0.085
GASCOYNE	0.111	0.175	120.00	0.367	0.653	0.079
PEAK HILL	40.490	0.032	398 466.00	1 685.679	1 726.201	108.948
LAWLERS	4.452	0.127	87 531.00	956.966	961.545	16.252
WILUNA	3.332	0.296	-	527.930	531.558	72.754
BLACK RANGE	11.677	1.645	527.00	72.101	85.423	1.116
EAST MURCHISON	19.461	2.068	88 058.00	1 556.997	1 578.526	90.122
CUE	34.292	2.594	200 545.00	759.456	796.342	2.127
MEEKATHARRA	80.011	3.716	649 574.00	1 702.367	1 786.094	10.442
DAY DAWN	13.236	-	13 968.00	252.492	265.728	57.043
MT MAGNET	7.569	0.767	451 943.00	1 721.993	1 730.329	186.937
MURCHISON	135.108	7.077	1 316 030.00	4 436.308	4 578.493	256.549
YALGOO	2.306	0.738	1 211.00	53.501	56.545	8.253
MT MORGANS	18.281	0.281	1 077.00	11.140	29.702	1.970
MT MALCOLM	18.734	0.859	1 365 193.00	4 582.977	4 602.570	156.515
MT MARGARET	13.385	4.538	323 389.00	1 281.857	1 299.780	275.332
MT MARGARET	50.400	5.678	1 689 659.00	5 875.974	5 932.052	433.817
MENZIES	1.355	0.774	231.00	153.116	155.245	21.068
ULARRING	0.230	-	31 671.00	32.759	32.989	0.289
NIAGARA	0.230	0.012	152.00	4.458	4.700	0.553
YERILLA	0.106	6.664	281 170.00	932.172	938.942	211.393
NORTH COOLGARDIE	1.921	7.450	313 224.00	1 122.505	1 131.876	233.303
BROAD ARROW	0.541	0.527	1 079 936.00	3 045.710	3 046.778	84.589
KANOWNA	5.017	0.267	6 662.00	33.669	38.953	2.137
KURNALPI	-	-	79.00	0.433	0.433	0.022
NE COOLGARDIE	5.017	0.267	6 741.00	34.102	39.386	2.159
EAST COOLGARDIE	4.887	3.037	2 755 718.00	11 387.452	11 395.376	2 979.810
BULONG	0.089	0.075	3.00	1.629	1.793	0.567
EAST COOLGARDIE	4.976	3.112	2 755 721.00	11 389.081	11 397.169	2 980.377
COOLGARDIE	5.208	0.923	828 525.00	3 909.875	3 916.006	939.059
KUNANALLING	3.590	0.086	124 133.00	124.821	128.497	0.620
COOLGARDIE	8.798	1.009	952 658.00	4 034.696	4 044.503	939.679
YILGARN	1.525	0.621	1 022 324.00	3 387.043	3 389.189	291.207
DUNDAS	0.780	-	323 109.00	3 643.744	3 644.524	2 243.879
PHILLIPS RIVER	-	-	801.00	46.749	46.749	7.629
SOUTH WEST	-	-	89 855.00	289.722	289.722	-
STATE GENERALLY	1.643	0.735	-	-	2.378	0.175
TOTAL	370.914	36.594	11 469 920.00	45 664.619	46 072.127	8 036.904

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(TM2,LM12,P)

Table 4

AVERAGE NUMBER OF PERSONS EMPLOYED IN MINING OPERATIONS  
IN WESTERN AUSTRALIA DURING 1985/86

MINERAL Company	Location	Above Ground	Below Ground	Total
<b>ALUMINA</b>				
Alcoa of Australia Ltd	Jarrahdale/Kwinana	1 388	-	1 388
	Del Park/Huntley/Pinjarra	1 905	-	1 905
	Wagerup	467	-	467
	Administration	257	-	257
Worsley Alumina Pty Ltd	Worsley	914	-	914
				4 931
<b>COAL</b>				
Griffin Coal Mining Co Ltd	Collie	468	-	468
Western Collieries Ltd	Collie	430	339	1 769
				1 237
<b>COPPER/SILVER/ZINC</b>				
Seltrust Mining Corp. Ltd	Teutonic Bore	59	-	59
<b>DIAMOND</b>				
Argyle Diamond Mines Joint Venture	Lake Argyle	728	-	728
Bow River Joint Venture	Lissadell	24	-	24
				752
<b>GOLD</b>				
Australian Consolidated Minerals Ltd	Day Dawn	33	34	67
	Westonia	71	-	71
Australis Mining NL	Dundas/Norseman	34	-	34
Austwhim Resources NL	Cork Tree Well	26	-	26
Bamboo Creek Joint Venture	Bamboo Creek	36	8	44
BHP Minerals Ltd	Grants Patch/Ora Banda	35	-	35
Broad Arrow Joint Venture	Broad Arrow	16	-	16
Brunswick NL	Lennonville	53	-	53
Central Kalgoorlie Gold Mines NL	Kalgoorlie	33	-	33
Central Murchison Gold Ltd	Mt Magnet	20	-	20
Central Norseman Gold Corp. NL	Norseman	90	286	376
Edjudina Gold Mines Pty Ltd	Edjudina	76	-	76
Electrum NL	Brilliant	16	-	16
Endeavour Resources Ltd	Yaloginda	68	-	68
Forsayth NL	Lawlers	38	-	38
Great Victoria Gold Ltd	Marvel Loch	42	-	42
Harbour Lights Mining Ltd	Leonora	93	-	93
Hill 50 Gold Mine NL	Mt Magnet	97	91	188
Horseshoe Lights Gold Pty Ltd	Horseshoe	35	-	35
Kia Ora Gold Corp. Ltd	Marvel Loch	72	30	102
KLV - Mt Charlotte	Kalgoorlie	159	202	361
KLV - Perseverance	Boulder	209	315	524
Metana Minerals NL	Reedy	26	-	26
Mt Percy Project	Kalgoorlie	43	-	43
New Broken Hill Cons. Ltd	Leonora	32	-	32
North Kalgurli Mines Ltd	Boulder	242	146	388
Otter Exploration NL	Lake Grace	23	-	23
Paddy's Flat Project	Ingliston	11	10	21
Pancontinental Goldmining Areas Pty Ltd	Paddington	109	-	109
Paringa Project	Boulder	30	55	85
Pennant Mining Pty Ltd	Trafalgar	12	-	12
Sons of Gwalia Ltd	Leonora/King of the Hills	29	-	29
Southern Goldfields Ltd	Marvel Loch	31	-	31
Spargos Exploration Pty Ltd	Lawlers	33	-	33
Telfer Project	Telfer	237	-	237
West Coast Holdings Ltd	Black Flag/Carbine	25	-	25
Western Alluvials Pty Ltd	Wiluna	20	-	20
Whim Creek Cons. NL	Meekatharra	76	-	76
WMC - Gt Boulder Holdings	Agnew	4	-	4
	Kambalda	59	40	99
	Lancefield	47	57	104
	Boulder	12	-	12
	Ora Banda	10	-	10
		674	102	776
				4 498
<b>IRON ORE</b>				
Broken Hill Pty Ltd	Yampi	487	-	487
Goldsworthy Mining Ltd	Pilbara/Port Hedland	963	-	963
Hammersley Iron Pty Ltd	Tom Price-Paraburdoo/Dampier	4 396	-	4 396
Mt Newman Mining Co Ltd	Newman/Port Hedland	3 858	-	3 858
Robe River Mining Co Pty Ltd	Pannawonica/Cape Lambert	1 762	-	1 762
				11 466
<b>MINERAL BEACH SAND</b>				
Allied Eneabba Pty Ltd	Eneabba	347	-	347
Associated Minerals Cons. Ltd	Capel	140	-	140
	Eneabba	129	-	129
Cable Sands Pty Ltd	Capel	130	-	130
Westralian Sands Ltd	Capel	213	-	213
				959
<b>NICKEL</b>				
Agnew Mining Co Pty Ltd	Leinster	288	103	391
Metals Exploration Ltd	Nepean	30	40	70
Western Mining Corporation	Kalgoorlie	378	-	378
	Kambalda	652	641	1 293
	Kwinana Refinery	402	-	402
	Mt Windarra	338	85	423
				2 957
<b>PETROLEUM PRODUCTS</b>				
Bond Corporation Pty Ltd	Harriet	55	-	55
Home Energy Pty Ltd	Blina/Sundown	6	-	6
Pacific Basin Exploration	Mt Horner	2	-	2
Strata Oil NL	Woodada	4	-	4
West Australian Petroleum Pty Ltd	Barrow Island	174	-	174
	Dongara	18	-	18
Woodside Offshore Petroleum Pty Ltd	North Rankin A/Burrup Peninsula	1 324	-	1 324
				1 583
<b>SALT</b>				
Dampier Salt Ltd	Dampier	207	-	207
	Lake McLeod	129	-	129
Leslie Salt Co	Port Hedland	99	-	99
Shark Bay Joint Venture	Shark Bay	84	-	84
				519
<b>ALL OTHER MATERIALS</b> (Including Rock Quarries)		730	-	730
<b>TOTALS:</b>		27 107	2 584	29 691

RS419AGU388 TM2,LM10,A114,P114,V6



TABLE 5

## ROYALTY RECEIPTS 1985/86

Mineral	Value (\$A)		% up (% down)	
	1984/85	1985/86		variance
Alumina	9 638 703	9 923 606	284 903	3
Building stone	896	792	(104)	(11)
Clay	128 566	88 672	(39 894)	(31)
Coal	1 090 174	1 400 429	310 255	28
Cobalt	93 540	131 844	38 304	41
Construction materials				
aggregate	58 712	28 996	(29 716)	(51)
gravel	14 684	6 907	(7 777)	(53)
rock	14 262	21 779	7 517	53
sand	52 398	134 051	81 653	156
Copper	586 568	276 349	(310 219)	(53)
Diamond	3 062 632	2 864 655	(197 977)	(6)
Diatomite	120	281	161	134
Dolomite	60	369	309	515
Emerald	-	126	126	Inf.
Feldspar	1 655	2 906	1 251	76
Garnet sand	7 177	11 327	4 150	58
Gold	100 622	103 663	3 041	3
Gypsum	159 134	118 963	(40 171)	(25)
Iron ore	88 531 269	101 950 692	13 419 423	15
Limestone	88 437	86 091	(2 346)	3
Magnesite	10 797	-	(10 797)	(100)
Mineral beach sands				
ilmenite	909 724	1 150 156	240 432	26
kyanite	-	1 285	1 285	Inf.
leucosene	98 546	133 303	34 757	35
monazite	182 708	282 594	99 886	55
rutile	492 691	1 173 396	680 705	138
xenotime	985	2 742	1 757	178
zircon	987 802	1 486 272	498 470	51
Nickel	5 572 626	5 926 069	353 443	6
Ochre	-	1 460	1 460	Inf.
Palladium	23 018	15 247	(7 771)	34
Peat	-	11 719	11 719	Inf.
Petroleum Products				
condensate	179 770	641 546	461 776	257
crude oil	13 621 418	29 538 137	15 916 719	117
natural gas	3 754 615	3 843 821	89 206	2
Platinum	23 011	15 247	(7 764)	34
Salt	505 586	555 276	49 690	10
Semi-precious stones				
amethyst	5 697	10 581	4 884	86
moss opal	80	1	(79)	(99)
tiger eye	-	3 766	3 766	Inf.
Silica sand	160 217	180 720	20 503	13
Silver	76 573	163 756	87 183	114
Spodumene	82 179	48 803	(33 376)	(41)
Talc	74 073	80 442	6 369	9
Tantalite	67 425	86 284	18 859	28
Tin	144 785	125 563	(19 222)	(13)
Vermiculite	596	377	(219)	(37)
Zinc	389 744	350 598	(39 146)	(10)
Total value	130 994 275	162 981 659	31 987 384	24

PRINCIPAL MINERAL PRODUCERS 1985 - Head office postal address, telephone number: minesite.

**ALUMINA**

Alcoa of Australia (WA) Ltd, P O Box 161, Kwinana 6167, (09) 419 1566: Del Park, Huntly, Jarrahdale  
Worsley Alumina Pty Ltd, P O Box 344, Collie 6225, (097) 34 3022: Boddington.

**BUILDING STONE - quartz**

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

**- black granite**

Parry Corporation Ltd, PO Box 457, West Perth WA 6005, (09) 322 1621: Napier Downs.

**CLAY - attapulgitite**

Mallina Holdings Ltd, 249 Stirling Highway, Claremont 6010, (09) 384 7077: Lake Nerramynne.

**- cement clay**

Bell Basic Industries Ltd, P O Box 75, Guildford 6055, (09) 279 0000: Armadale: Karragullen.

**- fire clay**

Midland Brick Company Ltd, Bassett Road, Middle Swan 6056, (09) 274 5522: Bullsbrook.

**- kaolin**

Greenbushes Tin Ltd, GPO Box J646, Perth 6001, (09) 325 8900: Greenbushes.

**COAL**

Griffin Coal Mining Company Ltd, GPO Box G474, Perth 6001, (09) 325 8155: Collie.  
Western Collieries Ltd, GPO Box X2231, Perth 6001, (09) 325 2711: Collie.

**COBALT**

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.

PRINCIPAL MINERAL PRODUCERS 1985 - continued.

CONSTRUCTION MATERIALS - aggregate

Adelaide Quarry Industries, P O Box 125, Wanneroo 6065, (09) 342 7333: Karratha  
Calsil Ltd, 5 Mill Street, Perth 6000, (09) 321 8552: Port Hedland.

Woodhead JL, 407 Packsaddle Road, Kununurra 6743, (091) 68 1472 : Kununurra.  
The Readymix Group WA, PO Box 20, Bentley WA 6102, (09) 451 5566: Boulder.

- gravel

Kane DJ, 8 Oleander Place, Wickham 6720, (091) 87 1616 : Mt Welcome.  
Pioneer Concrete (WA) Pty Ltd, P O Box 187, Victoria Park 6100, (09) 362 1100: Port Hedland.

- rock

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

- sand

Adelaide Quarry Industries, P O Box 125, Wanneroo 6065, (09) 342 7333: Karratha.  
Calsil Ltd, P O Box 7214, Cloisters Square, Perth 6000, (09) 321 8552: Port Hedland.  
Clackline Refractories Ltd, P O Box 893, West Perth 6005, (09) 386 7833: Clackline.  
Cottiers 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.  
Pioneer Concrete (WA) Pty Ltd, P O Box 187, Victoria Park 6100, (09) 362 1100: Port Hedland.  
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: Boulder, Jones River, Rocklea,  
Turner River, Widgiemooltha.  
Tomlinson JJ, Via Flynn Road, East Mundaring WA 6073, (095) 72 6088: Chidlow

COPPER

Agnew Mining Company Pty Ltd, P O Box 22, Leinster 6437, (090) 37 6005: Agnew.  
Teutonic Bore Mine Project, GPO Box R1274, Perth 6000, (09) 325 4511: Teutonic Bore.  
Western Mining Corporation Ltd, P O Box 80, Belmont 6104, (09) 478 0711: Kambalda.

PRINCIPAL MINERAL PRODUCERS 1985 - continued.

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: Sabys Peak.

DOLOMITE

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

FELDSPAR

Snowstone 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

Central Norseman Gold Corporation N L, P O Box 56, Norseman 6443, (090) 39 1101: Norseman.  
Edjudina Gold Mines, P O Box 1014, Kalgoorlie 6430, (090) 24 2056: Edjudina.  
Gold Resources Pty Ltd, Private Mail Bag 90, Kalgoorlie 6430, (090) 21 5544: Fimiston.  
Harbour Lights Mining Ltd, P O Box 240, Leonora 6438, (090) 37 6211: Leonora  
Hill 50 Gold Mine N L, 140 St George's Terrace, Perth 6000, (09) 322 6915: Mt Magnet.  
Kalgoorlie Minings Associates, P O Box 105, Fimiston 6433, (090) 21 3411: Fimiston, Mt Charlotte.  
Newmont Holdings Pty Ltd, P O Box 211, Cloverdale 6105, (09) 277 7011: Telfer.  
North Kalgurli Mines Ltd, P O Box 88, Fimiston 6433, (090) 21 0600: Fimiston.  
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: Leonora.  
Western Mining Corporation Ltd, P O Box 80, Belmont 6104, (09) 478 0711: Agnew, Boulder, Kambalda,  
Lancefield, Ora Banda.  
Whim Creek Consolidated N L, P O Box 144, West Perth 6005, (09) 325 5855: Meekatharra.

PRINCIPAL MINERAL PRODUCERS 1985 - continued.

GYPSUM

Agnew Clough Ltd, P O Box 7005, Cloisters Square, Perth 6000, (09) 322 4811: Shark Bay.  
Amalgamated Industries 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.  
CSR Building Materials, P O Box 91, Bentley 6102, (09) 451 4444: Yellowdine.  
D & C Nominees Pty Ltd, P O Box 155, Yerecoin 6571: Wongan Hills.  
Fitzgerald E M and E J, P O Box 404, Merredin 6415, (090) 41 1146, Hines Hill.  
Green K L and P M, Newdegate 6355: Newdegate.  
McAndrew Mining, Yelbeni 6487: Yelbeni.  
Nixon P F and R S, P O Box 69, Moora 6510: Lake Hillman.  
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.  
Robe River Iron Associates, GPO Box P1224, Perth 6001, (09) 325 9288: Pannawonica.  
Goldsworthy Mining Ltd, GPO 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:  
Mt Whaleback.

LIMESTONE

Bell Basic Industries Ltd, P O Box 75, Guildford 6055, (09) 279 0000: Wanneroo.  
Bellombra V, 6 Park Street, Tuart Hill 6060, (09) 349 3312: 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: Cleaverlyville.  
Swan Portland Cement Ltd, P O Box 78, Rivervale 6103, (09) 361 8822: Wanneroo.

MINERAL BEACH SANDS

Allied Eneabba Ltd, P O Box 6115, Hay Street East, Perth 6000, (09) 325 2599: 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.

PRINCIPAL MINERAL PRODUCERS 1985 - continued.

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

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.  
Pacific Basin Exploration Pty Ltd, 100 Mill Point Road, South Perth 6151, (09) 368 2800: Mt Horner.  
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.

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.

**PRINCIPAL MINERAL PRODUCERS 1985 - continued.**

**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 Baille Road, Canning Vale 6155 (09) 455 1111: Lake Gnangara.  
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**

Teutonic Bore Mine Project, GPO Box R1274, Perth 6000, (09) 325 4511: Teutonic Bore.  
Western Mining Corporation Ltd, P O Box 80, Belmont 6104, (09) 478 0711: Kambalda.

**SPODUMENE**

Greenbushes Tin Ltd, GPO Box J646, Perth 6001, (09) 325 8900: Greenbushes.

**TALC**

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

**TANTALITE**

Goldrim Mining Australia Ltd, 317 Hunter Street, Newcastle, NSW 2300, (049) 22 433: Wodgina.  
Greenbushes Tin Ltd, GPO Box J646, Perth 6001, (09) 325 8900: Greenbushes.  
Kincora Pty Ltd, P O Box 6009, Hay Street East, Perth 6000, (09) 325 6442: Old Shaw.

**TIN**

Endeavour Resources Ltd, Private Bag 16 Post Office, West Perth 6005, (09) 322 6444: Moolyella.  
Goldrim Mining Australia Ltd, 317 Hunter Street, Newcastle, NSW 2300, (049) 22 433: Wodgina.  
Greenbushes Tin Ltd, GPO Box J646, Perth 6001, (09) 325 8900: Greenbushes.

**PRINCIPAL MINERAL PRODUCERS 1985 - continued.**

**VERMICULITE**

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

**ZINC**

Teutonic Bore Mine Project, GPO Box R1274, Perth 6000, (09) 325 4511: Teutonic Bore.



# MINERAL PRODUCTION MAJOR CENTRES

## REFERENCE

- |               |                 |
|---------------|-----------------|
| △ BAUXITE     | ◆ IRON ORE      |
| ■ COAL        | □ MINERAL SANDS |
| ▼ COPPER/ZINC | ☀ NATURAL GAS   |
| ☀ CRUDE OIL   | ⊗ NICKEL        |
| ⊛ DIAMONDS    | ▲ SALT          |
| ○ GOLD        | ★ TALC          |
| ◼ GYPSUM      | ◇ TIN           |

